Electricity on the Farm

A Monthly Magazine for the Progressive Rural Family

15 5 Decembe 1931

$50 in cash prizes awarded for best cover titles. See page 43 inside back cover for rules

If men did the cooking

they'd know the value of a gift like this

HI-SPEED CALROD

Only General Electric Hotpoint Ranges have this faster, more economical heating unit.

▼

Hear the "G-E CIRCLE" broadcast over nation-wide N B C network at 12:00 noon, E. S. T. every week day except Saturday. Also every Sunday at 5:30 p. m., E. S. T.

"What Mother Really Wants"

MEN—just a few dollars down and easy payments will give Mother this Christmas gift which will save her time and strength for the rest of her life.

With a General Electric Hotpoint Automatic Range there will be no more wood, coal or oil to bother with, no fires to start, no ashes, no soot. Instead—at the turn of a switch *any* time . . . instant, fast, clean heat—and exactly the right heat automatically maintained.

A great GE invention, Hi-Speed Calrod, has now made electric cooking so economical that every home can afford this modern convenience. There are General Electric Hotpoint Ranges to fit every purse. See them at your electric company—or write direct for booklet.

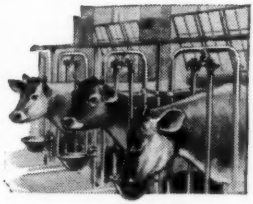
GENERAL ELECTRIC

Hotpoint

AUTOMATIC ELECTRIC RANGES

EDISON GENERAL ELECTRIC APPLIANCE CO., Inc., 5622 W. Taylor St., Chicago

The Water System *that* YOUR Farm *needs*



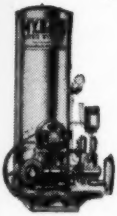


FIG. 2510
An electric powered system for shallow wells. Complete automatic control. No personal attention needed.

The depth of your well, the amount of its flow, the height and distance to which water must be delivered, the quantities required for different purposes, the power that will be used—these and many other factors govern the style and type of water system that will function most satisfactorily on your farm.

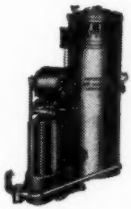


FIG. 2700
An automatic water system for deep wells. Powered with electric motor. Self-starting and self-stopping.

FIG. 2549
For shallow wells — power pump with easy starting gasoline engine. Can be arranged to stop automatically.

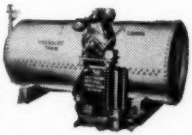


FIG. 2551
Deep well power pump, with easy starting gasoline engine, as it is usually attached to pressure tank.

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No matter what your requirements, the Myers Dealer can furnish a water system that will exactly fit them. He has no need to recommend any make-shifts. The Myers line of Water Systems is ***the most complete*** offered by any manufacturer. It includes types and sizes to fit all conditions. There is a time-tested, trouble-proof Myers unit ready to serve you with absolute reliability and the greatest possible economy.

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Pumps for Every Purpose, Water Systems, Hay Tools, Door Hangers

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The Greatest Range VALUE Ever Offered for Farm Kitchens

Monarch

FUEL-ELECTRIC

Commodious, Compact, Efficient and Complete with Coal-Wood Kitchen Heater and Water-Heating Equipment

Consider advantages; compare prices, and this Monarch is the range you will select. Fuel firebox designed for hard coal, soft coal or wood. Water reservoir (optional) may be equipped with electric heating element or heat from firebox alone. Waterfront in firebox if desired. Large electric oven and three surface cooking units. All finished in beautiful porcelain enamel. See your Electric Company or write us for new low prices and easy terms.

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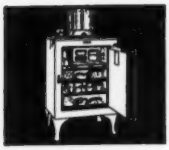


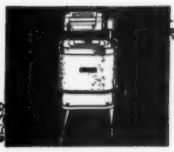
For Christmas

ELECTRICAL GIFTS

WHAT better Christmas gift than provision for comfort — and health — and convenience! Home electric appliances — builders of happiness — servants that save time and money. A G-E refrigerator, G-E Hotpoint range, or G-E washer and ironer; a G-E vacuum cleaner or G-E sewing machine; a G-E radio, G-E clock, or G-E Sunlamp; a G-E Hotpoint heating pad — there's a G-E appliance for every purse and every purpose. And all may be purchased on easy terms.

Send for our new booklet, "Electric Helpers for the Farm." Address Room 317, Building 6, General Electric Company, Schenectady, N. Y.

JOIN US IN THE GENERAL ELECTRIC FARM PROGRAM FROM WGY, SCHENECTADY, EVERY MONDAY EVENING AT 8:30 O'CLOCK, EASTERN STANDARD TIME



GENERAL ELECTRIC

95-911D

Heap on more wood! The wind is chill;
But let it whistle as it will,
We'll keep our Christmas merry still.
Each age has deemed the new-born year
The fittest time for festal cheer.

—Sir Walter Scott.

Christmas, the season of happy family reunions, of good will; the season of youthful delight, is again with us.

There is something particularly appealing about this season of all seasons. Possibly it is the spirit of tolerance, of charity, and mutual well-wishing. Maybe it is the recollections of happy childhood.

Christmas day is primarily a family holiday, for it affords the occasion for making the little ones happy. With the young folks of yesterday developing into the older folks of today, the spirit of Christmas is perpetuated.

* * *

May we take this opportunity to extend to our readers the earnest wish that this Yuletide will be one of great happiness, and the coming year, a year of prosperity and good health.

THE PUBLISHERS.

"For still will Christmas
gild the year's mischances,
"If childhood comes, as here,
to make him merry"

CHRISTMAS GIFTS

"IT is a clever thing to know how to give," said Ovid, the great Latin poet back in the year 23 B.C. And this was long before the first celebration of Christmas as a holiday. What he said then holds true today.

So many present day gifts are apt to be of little use; Christmas presents are considered chiefly from the standpoint of the giver, ofttimes little consideration being given by the donor to their utility. Possibly this is due to the feeling that the average person is fully equipped with necessities, and if he is to be given something that he does not already possess it must necessarily be an article that is unusual.

At any rate, you'll frequently find Christmas gifts stored in closets, cupboards, and other places of repose, where they'll be out of the way rather than convenient to reach.

The ideal Christmas gift should meet these requirements:
1. *It should be useful.*
2. *It should be attractive.*
3. *It should not be extravagant.*

In addition, its value is increased if it is of such a nature that it can be put to daily use.

What field offers a bigger and more likely selection than that of electrical appliances? Most of them are useful, and adaptable for daily service. And what is more attractive than the average electrical device with its brilliant metal trimmings? Furthermore, there is less likelihood of the average family having anywhere nearly as full a complement of electrically operated household appliances as other home equipment which might be offered as Christmas gifts.

Truly, "it is a clever thing to know how to give, and," we may add, "what to give." However, electrical gifts will go a long way in helping to solve the problem.

Below are list some of the more popular electrical appliances. There are, of course, many others which are equally useful and acceptable:

Some Suggestions

Ranges
Hot Plates
Toasters
Percolators
Egg Cookers
Waffle Irons
Corn Poppers
Tea Kettles
Refrigerators
Ice Cream Freezers
Clothes Washers
Dish Washers
Ironing Machines
Flat Irons

Vacuum Cleaners
Floor Polishers
Clocks
Food Preparing Machines
Household Motors
Sewing Machines
Curling Irons
Food Mixers
Fans
Hair Dryers
Heating Pads
Milk Warmers
Ultra Violet Lamps
Vibrators
Grooming Machines

Ventilators
House Current Radio Sets
Electrical Toys
Home Movie Projectors
Talking Machines (Motor driven)
Automatic Water Systems
Electric Water Heaters
Water Softeners
Paint Sprayers
Soldering Irons
Tool Grinders
Clipping Machines
Churns

One way of solving the problem of

ROOM HEATING

where an electric range is employed

By NELLIE WEBB ALCORN
Webbwood Springs Farm,
Route 7, Delaware, Ohio

NO doubt many farm women who enjoy the blessings of an electric range in their homes have been confronted with the problem of heating their kitchen in winter.

Some of the later models of electric ranges are equipped with a built-in firebox designed to provide room heat in winter. The construction of these fire boxes permit the use of soft coal, hard coal, or wood for fuel and provide additional surface space for cooking. But many of the ranges now in use do not serve the double purpose of heating and cooking.

How We Do It

Mine does not, but I have found a simple and convenient way of solving the kitchen heating problem. Unfortunately our basement does not extend under our dining room and kitchen, and when our furnace was installed it was found the heat could not be piped to the kitchen. Instead of substituting our range for a coal stove, or keeping up both a cooking and heating stove, I conceived the idea of having a "plug" put in the dining room just back of where the stove stood in the kitchen. As our range is light and on rollers it is an easy matter, when the weather is unusually cold, to roll the stove through the doorway and attach the cord to the plug in the dining room, which is usually warm and comfortable.

Thus we save time and labor by not having to keep up a coal stove, avoid the dirt and ashes that inevitably go with it, and have more space in the kitchen.

In the average city home the duties of the housewife are considerably lightened during the hot weather. Appetites are not so keen, fewer meals are prepared, and cold and canned foods are served.

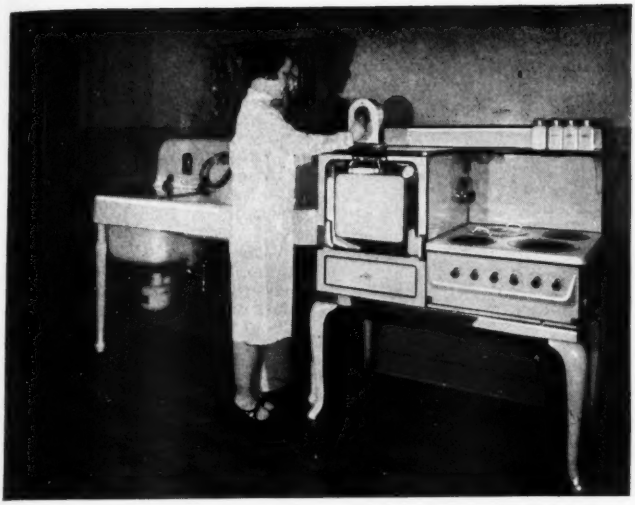
Different on the Farm

Not so with the farm housewife. She must spend more time than ever over the cook stove. In haying and threshing time the men work harder and eat more. The farm hands and extra labor employed during this season make more to cook for, and the garden, with its numerous variety of new vegetables coming on, provides more food to be cooked.

So while many electric ranges fail to supply adequate room heat in winter, this seeming disadvantage works out to a big advantage in the summer. Instead of sweltering over a hot stove during the sultry days of July and August, the meals are prepared in an atmosphere cool and restful in comparison.

It is surprising how general the impression is that the electric range is too expensive for families of moderate means. If you value your time, convenience, health and comfort you will find it the most economical of all cooking devices.

Those who hurriedly jump to



Electric Range and Modern Plumbing Fixtures Enhance the Convenience of Any Kitchen

Combination Range at the Home of Mrs. Kluge near Rolling Prairie, Wis.

the conclusion, after purchasing a range, that the cost of operation is too high usually find that they do not properly operate it to get the maximum results. Most electric stoves have three heat speeds —low, medium and high. I have observed that the electricity is often turned on high or medium regardless of the amount of heat required. Much electric current is wasted by using a higher speed when the next lower speed will supply sufficient heat, and accounts, in a great measure, for high electricity bills.

Another wasteful method is to keep the heat turned on until food is entirely cooked. In some cases this may be necessary, but in most cases it is not. One of the greatest advantages of the electric range is that the heating elements are heat retaining, and unless this heat is utilized after the electricity is turned off it is just that much heat lost or wasted.

At certain stages in cooking most women can judge just about how long or how much more heat will be required to cook the food to a turn. Thus food may be started on high, switched to medium, and then turned off entirely during the process of cooking.

Cleanliness

One of the most delightful features about the electric range is the absolute cleanliness of it. No smoke, no ashes, no unsightly coal and wood boxes, no chimney connections, no gas or oil fumes, and no blackened pots and kettles. The range itself does not become black or greasy from use.

From the standpoint of health, also, electricity has the advantage over any other heat for cooking. Owing to the absence of combustion, the air is not robbed of its oxygen and no carbon or unwholesome gases are formed by the heat.

A very attractive feature of the electric range is the oven. The later models are now completely equipped with automatic devices, such as heat controls and clock controlled timers.

The thermostat is the automatic device which regulates the temperature. When set for a certain temperature the desired heat is quickly attained and maintained.

The timer is controlled by a clock device which automatically turns the heat on or off at a set time.

Those ranges which are not equipped with automatic devices may be operated somewhat on the principle of the fireless cooker. Foods are partially cooked by turning on one of the three heat speeds, according to whether the food requires slow or high heat. Since sufficient heat is retained in the insulated oven to thoroughly cook the food, "you may 'turn off' the switch and leave for the afternoon."

I happen to have one of these models and like it because you do not have to worry about the electric current. You *know* it is turned off.

Pure Water

The purity and freshness of water furnished livestock is an important link in the chain of disease prevention according to a report issued by eastern Iowa veterinary practitioners. Water for livestock use may contain a variety of bacteria without being exceedingly harmful, but if such water is allowed to stagnate with heat, darkness and other conditions favorable for the multiplication of the germs they may make the water harmful and a source of disease to the stock. Water, which may be very dangerous, may give no warning by smell, look or taste. Stock tanks and drinking fountains should be cleaned periodically to prevent dangers of infection from this source. If freshness of water is important, as claimed by these veterinarians, the farm water system has an important place in livestock sanitation. The rather common practice of throwing out dishwater or emptying the slop pail near the farm house, which does not have sanitary conveniences and where chickens may have access to this waste, has long been recognized as an important cause of a high mortality rate among farm flocks.

IVY HOUSE

A Certified Milk Farm in the British Isles

By E. R. MEACHAM

It is easy to see why the Greenshield's home is called Ivy House

WE have Mr. H. D. Phelps to thank for the opportunity to visit an English dairy farm. Mr. Phelps is a rural engineer for the Newcastle-on-Tyne Electric Supply Company. In describing how British farmers are using electric service, he told us about Mr. E. Greenshields' certified dairy at Ivy House, and offered to take us there.

As we drove out through that coal mining country, we realized why carrying coal to Newcastle has been a fool's errand for centuries. Mile after mile we went through the colliery villages with blocks of red brick houses built end to end in solid rows, through the populous city of Sunderland with its shipyards temporarily stilled, around a sharp corner in East Herrington to draw up at the very door of Ivy House.

Mr. Greenshields was expecting us. He was standing at the gate talking to a workman when we drove up. He welcomed us with a genial smile and suggested that we go at once to the barns where the men were already milking.

Produces Certified Milk

Mr. Phelps had told us that the four hundred acres at Ivy House are devoted to mixed farming, but that the emphasis is on the dairy producing certified milk for the city of Sunderland three miles away.

The milking byre is a long, low, one-story stable with walls of brick and stone and roof of slate. There is no mow or storage space overhead, no feed alley in front of the cows and no stanchions such as are common in America. The fine line of Ayrshires are tied to a manger along one wall of the barn.

A white suited man was moving the milking machine from one cow to the next. Another passed us with a covered pail of milk in each hand. Directly in front of us, posted on a wall where it served as a constant reminder, was this notice:

> *Any person caught ill treating a cow in this establishment will receive instant dismissal.*

In front of each cow hung a card carrying two numbers and a name. "The upper number is the government record of that particular cow," explained Mr. Greenshields. "A permanent record is made of that number, and it is always applied to that cow through all changes in ownership. The other is our herd number."

We made a right angled turn in the barn and walked down the long end of the L behind a row of splendid Guernseys. Altogether there were about fifty cows in the milking herd.

"Show us the ones you had at the Royal, won't you?" asked Mr. Phelps.

We must have looked our question, I suppose, for he went on.

"Mr. Greenshields had some fine Ayrshires in the Royal Agricultural Show at Warwick last week. He got a couple of prizes, too."

"They were seconds," said Mr. Greenshields, deprecatingly.

"Well, it takes pretty good animals to get seconds in a show like the Royal."

So we passed over to the second barn, where the show herd was quartered in box stalls. Here the cattle were resting up from their trip the week before, and being groomed for a coming show. Both breeds were represented by excellent animals.

The mechanical refrigerator is across the driveway from the dairy room

We came out into the gray of the late afternoon again, and Mr. Greenshields stepped ahead of us to unlatch the gate into the stockyard.

"Have you any idea about the life of a farm gate," he asked as we filed through.

None of us had.

"Most people haven't," he went on, "but I know to a day when this one was hung. It was the day my first boy set the stacks afire, and I put this gate up to keep the young beggar out of the yard. That was twenty-seven years ago last April."

Twenty-seven years is a ripe old age for a gate, but I judge it is typical of British building. With judicious repair it may be opening and shutting every day for another quarter of a century.

The British Stack Yard

So far as I know we have nothing like the British stackyard. It takes the place of our granary, for it is the storage place for the British farmer's corn. This does not mean Indian corn or maize, but refers to grain of all kinds. There seems to be no particular threshing season over there. They thresh as they need the grain all year round. That means that the stacks may stand for a year or more, and makes stacking a much more particular job than it is with us.

In the stackyard Mr. Greenshields had perhaps a dozen stack bottoms. Each one is a six sided frame made of timber about four inches by eight inches and set on edge. Under each of the six corners there is a heavy cast iron support about twenty-four to thirty inches high, having a bell at the top, which keeps mice and rats from climbing it. These supports rest on stone, brick or concrete foundations to keep them from sinking into the ground. The stacks built on these frames are well away from the ground and have a good circulation of air under them.

"We start the stack around a box, you know," said Mr. Greenshields, "and as we build, we pull up the box so as to give us a chimney right up through the center. By doing that we can start our stacking two or three days quicker."

As each stack is finished, it is given a thatched roof, carefully fastened down so that it is safe from weather for many months. When we were there in July, Mr. Greenshields had stacks in his yard from the previous year's harvest.

"But there isn't a mouse in a one of them," he said.

I could well believe it. I don't believe there was a sheaf of damp grain in one of them either.

Mr. Greenshield's threshing machine stands in the Dutch barn at

the back of the picture. He has threshed with electric motors for more than twenty years. The barn is well lighted so his men can see to thresh on dark days. They do not move the machine out to the stacks, but cart the sheaves to the barn, where the work is all done under cover.

Threshers Different

The English thresher is very different from ours. In the first place, the cylinder and concaves do not have a lot of teeth to tear out the straw and whip out the grain. Instead the threshing is done by a soft rubbing action between the cylinders and concaves. The cylinders are extremely long, as long as the tallest rye they may wish to thresh, for the straw enters the machine crosswise, that is parallel to the cylinder and goes all the way through the machine in that position. Instead of any form of stacker at the rear, there is a mechanism almost exactly like that of a grain binder, with packers, needle and knotter to tie up the straw and deliver it in bundles. The straw was valuable. Even in this year of low prices it brought as much as $17.00 a ton.

As we walked back through the stack yard, I noticed a one horse hay rake. It was much narrower than our rakes, and the strong, heavy teeth seemed to be about twice as close together.

"That's the best rake I've ever seen in my life," said Mr. Greenshields. "It's no toy, but a real engineering job. I'll show you how it works."

There was a sort of leg or support folded up against each thill and when we pulled the pins that held them the ends of these legs dropped down and rested on the ground. Pulling the rake forward a little brought it up onto these supports with the wheels clear off the ground. Then Mr. Greenshields slipped a crank into a shaft just behind the main axle of the rake, and by turing it extended the rake to twice its former width. The teeth were then twice as far apart as they were before.

"That will travel our roads and lanes and go through any ordinary gate," he said, "but it covers twice as much ground in the field."

Roses cling to the walls of the byre

Paved Barnyard

Then we walked back toward the buildings through a courtyard paved with stone and brick.

"This doesn't look very much like our barnyards," I said, looking at the mellow old walls with rose bushes climbing to the roof, and at the scarlet geraniums and vivid blue bachelor's buttons in the hanging baskets swinging outside the windows.

Mr. Greenshields smiled.

"It hasn't always been like this. There was a time when we weren't satisfied unless we had three or four hundred tons of manure in this place, and we were proud of it. Then a man from the Ministry of Health came along and said we had to get rid of that manure. So we began getting it out on the fields where it belongs. "Now," and he flourished his walking stick to include the whole court, "no more flies, and where that manure pile stood we have planted a rose bush."

By this time we had reached another building where they grind grain, break oil cakes and clean and chop the roots they feed as we feed silage.

Electric motors run all of these machines. The grinder was much like those we use in this country, and the cake breaker was similar to the one we had seen at Greater-Felcourt. So we found the root chopper most interesting.

The roots, beets, carrots or turnips go into the hopper at the left of the machine. They rest on a long horizontal cylinder made up of iron rods. As this cylinder revolves, it rolls and tosses them about, shaking off the dirt and stripping off dead leaves. This keeps the dirt out of the feed and prevents any gravel from reaching the knives. From the cleaning cylinder the roots pass directly to the slicer. At Ivy House the sliced roots are carried to the barn for feeding in the big shallow splint baskets shown in the picture.

The Dairy at Work

While we looked at them, one of Mr. Greenshields' sons came into the feed room.

"They'll be through bottling before long, father," he reminded him.

"Oh, of course, let's go across to the dairy and see them finish up the milk."

Every one was working at top speed to get the milk out of the way. The last of it had been poured into the cooler tank and was running down its corrugated sides to the reservoir of the bottler. This aerator was water cooled, they told us, so that the milk coming off was brought down to 52°. A deft fingered girl filled the bottles and put on caps bearing the date. Another covered the whole top of the bottle with a sheet of parchment, gathered the edges down neatly and made it all fast with a gummed strip around the neck of the bottle. When a box was filled, one of the boys carried it across to the big mechanical refrigerator to be stored till morning. By that time the temperature of the milk would be 48°.

In one corner of the room a girl in a long, white coverall, and grey rubber boots, was washing the milking machine. I asked her about its routine care. She told me that the milker was brought over from the farm just as soon as the milking was done, because, as she pointed out, "You can't fool with these things." First she pumps cold water through the machine, then a warm solution of soda and water. Last of all she rinses it by pumping hot water through. The teat cups are scrubbed with a brush in a second pail, and all of it sterilized, with the rest of the dairy utensils in a steam sterilizer. Once a week the milker is taken apart for an extra special cleaning.

The Ministry of Health certifies the milk in England. Their requirements are no more than 30,000 bacteria per cubic centimeter and no coli bacilli at all. An inspection is made twice a month. A government employee takes a bottle from the delivery truck on the street. The report on the test of the milk is sent directly to the Ministry of Health in London. From there it comes back to the farm with the single comment "satisfactory" or "unsatisfactory."

Premium for Cleanliness

There are several girls working in the dairy, and the carelessness of any one of them in handling the machines or bottles or pails would render the efforts of all the others useless, so Mr. Greenshields gives them all a bonus each time the count is below a thousand. None of them get it when the count is higher no matter whose fault it is.

While we looked at the electric cooling room, Mrs. Greenshields came out of the house toward us.

"Aren't you ever bringing these

Root cleaner and slicer in feed room

folks in to tea," she asked her husband after greeting us cordially.

"Right away, right away," he answered her, and led us over to the back door through a wide roomy entry, past the kitchen, past the dining room, whose open door showed us a lovely old Dutch dresser with row on row of big blue platters, and into a quiet, pleasant living room. A gateleg table was drawn up before the fire to hold the tea.

We Enjoy Tea

An English tea is a pleasant experience anywhere, but in an actual English farmhouse, before a hospitable English fire, it has a never to be forgotten charm.

My wife reminds me that any woman would want to know what we had for tea, and since I do not remember, she gives the details down to the last cherry tart.

First there was tea, of course; then thin, very thin slices of bread and butter, and buttered currant buns. Then with that second cup of tea that always follows the first, there was French pastry and cherry tarts.

When the last crumb of the last tart was brushed away, the little maid came in and took away the tea things and folded the table against the wall. Then Mr. Greenshields got out his pipe and we all sat back and talked of everything in the world; the German economic situation, Russian labor, the reparations and debt settlement. Mr. Greenshields' keen, kindly, blue eyes twinkled as he gently prodded us about the observance of our prohibition laws.

But we brought him back to his own farm again to ask him many questions about its operation.

"We run it with 24 laborers, who live in cottages right here in the village at the edge of the farm," he explained. "That includes the girls in the dairy, but when we lift potatoes, we have to have a lot more girls in. We usually raise about 40 acres of potatoes, you know."

As we drove back to Newcastle we questioned Mr. Phelps. "Are all English farmers as interested

Mr. Greenshields in the stack yard with his folding hay rake

in world events and as well informed as that?" we asked. "No, Mr. Greenshields is an unusual farmer?" he replied. "He travels a bit and keeps his eyes open. He sees how other people do things and is quick to adapt a practice to his own needs when he finds something good.

"They have had electricity at Ivy House so long that they could scarcely imagine farming without it," he went on. "They use a lot of it, too. For lights and refrigeration and many motors it amount to between 10,000 and 12,000 kilowatt hours a year."

We had stayed disgracefully long. But, after all, that's something of a compliment to a hostess, isn't it?

It was fascinating to see how, in these sturdy stone buildings that had housed the myriad activities of a farm for more than a century, modern methods were providing for a better home and a more profitable farm than ever before.

> It is well for a man to respect his own vocation whatever it is, and to think himself bound to uphold it, and to claim for it the respect it deserves.
>
> —Charles Dickens

Farm of J. A. Gardner, Everett, Washington, showing Mr. Gardner and pen of high producing breeders in foreground.

MODERN HATCHERY METHODS

By J. C. SCOTT

THE most successful operation of a modern hatchery demands dependable electric service, according to Mr. J. A. Gardner, hatcheryman living near Everett, Washington, who turns out baby chicks at the rate of 6,000 per week during the hatching season.

Two mammoth electric incubators enable Mr. Gardner to get hatches of about 66 per cent generally, and sometimes as high as 80 per cent.

Big Brooder Capacity

In the brooder room are eight electric battery brooders with a capacity of 900 chicks each. The use of these battery brooders allows Mr. Gardner to deliver to his customers seven-day old chicks which have been started under ideal conditions, and to materially reduce the losses after delivery.

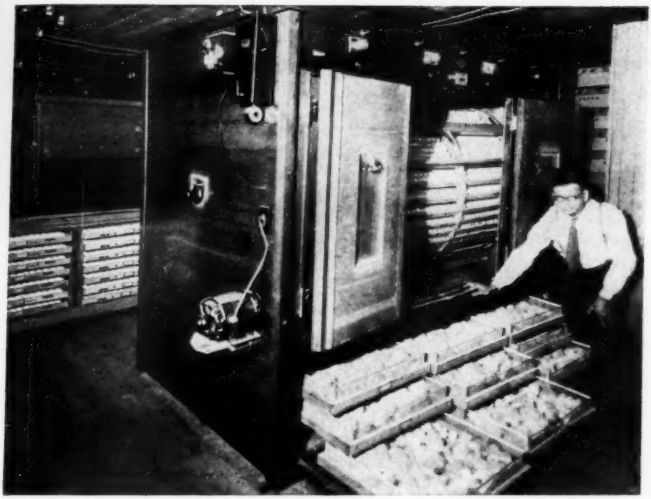
The temperature in the building that houses the hatchery equipment is kept at about 70 degrees by a low pressure boiler, with an electric oil burner. This temperature is maintained in all parts of the building by ventilating fans and an electric control system.

Eight years ago with a capital of $20.00 and an idea, Mr. Gardner went to work on five acres of undeveloped land, and at present has a combined poultry plant and hatchery representing an investment of $22,000.

Developing High Producing Flocks by Careful Breeding

Realizing that birds of high producing strains were necessary to success, Mr. Gardner selected what he considered the very best foundation stock of White Leghorns possible to obtain. By selecting hens from this stock and mating them with cockerels from hens with trap nest records of from 260 to 310 eggs in their pullet year, Mr. Gardner has built up a high producing flock of quality birds.

The electricity used in the operation of Mr. Gardner's plant requires a transformer capacity of 35 K.V.A., or about as much as is necessary to serve the lighting load of a four-story department store occupying one-quarter of a city block.



Incubator room of the Gardner hatchery showing 80% of the hatch ready to be removed from incubator.

Battery brooder room on farm of J. A. Gardner, Everett, Snohomish County, Washington, showing six of the eight battery brooders in operation and the housing of one of the ventilating fans.

LIGHTS for the Christmas Tree

Methods which will improve their decorative effect

By LORENE BERESFORD

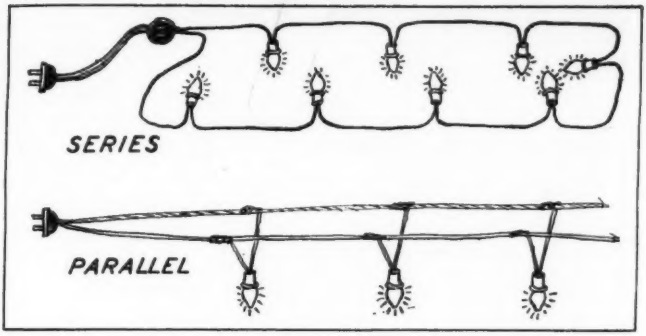
MANY little lights make the Christmas tree decorations most effective. For every additional lamp gives a new angle for the reflection of the sheen and sparkle of tinsel and the glimmer of ornaments. If good durable sets are selected, they may be saved from year to year and used for other purposes, such as lighting miniature Jack-o-lanterns for Hallowe'en or toy balloons for lawn parties.

There are two types of Christmas tree lighting sets available. The drawing shows how they differ. In the series circuit, the voltage of all the lamps added together is equal to the ordinary house voltage. The current must pass through all of these lamps in order to complete the circuit. Therefore, if one of them is burned out, or removed or even loosened in its socket, none of the set will light. This type is most common, but the advantages of the parallel circuit are increasing its popularity.

On the parallel circuit, each lamp is of the same voltage as the regular lamps throughout the house. Each lamp is independent of the others so as few or as many as desired can be used on the parallel circuit. Even the breaking of a small wire that connects a lamp to the main circuit does not affect the rest of the set.

If a series set fails to light, a quick check may be made by placing a new bulb in one of the sockets and then replacing the bulb

Lighted Toy Balloons Prove Attractive Decorations



in each succeeding socket with the bulb removed from the first one until the burned out bulb is located and the outfit lights again.

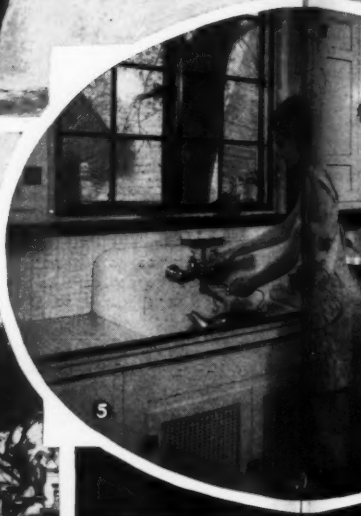
When buying new lighting sets for this year's Christmas tree, be sure to go to a reliable dealer in electrical appliances. See that the set you buy is intended for the voltage you have in your house, that the wires are of good size and well insulated, and that all of the sockets and connectors are of moulded composition. Have the set tested before you accept it and be sure to get a supply of extra bulbs for it. These precautions will insure a brilliant and safely lighted Christmas tree.

Modernizing Kitchens

Serving on the committee for bean and chicken suppers will be a more pleasant task this fall and winter in at least seventeen Granges, rural churches and other organizations in New Hampshire which are competing with each other in a campaign conducted by the extension service to modernize public kitchens. Last year 250 farm families in this state improved their own kitchens and Miss Ann F. Beggs, extension specialist, believes that the organized groups could do much to improve these kitchens which too often make drudgery out of public spirit. "Frequently," she says, "there is no running water. Sometimes there is not a drain. The committee has to haul the water upstairs and dispose of garbage as best they may. At the end of the hot, weary siege the committee has to face a huge stack of dishes without decent facilities for handling them."

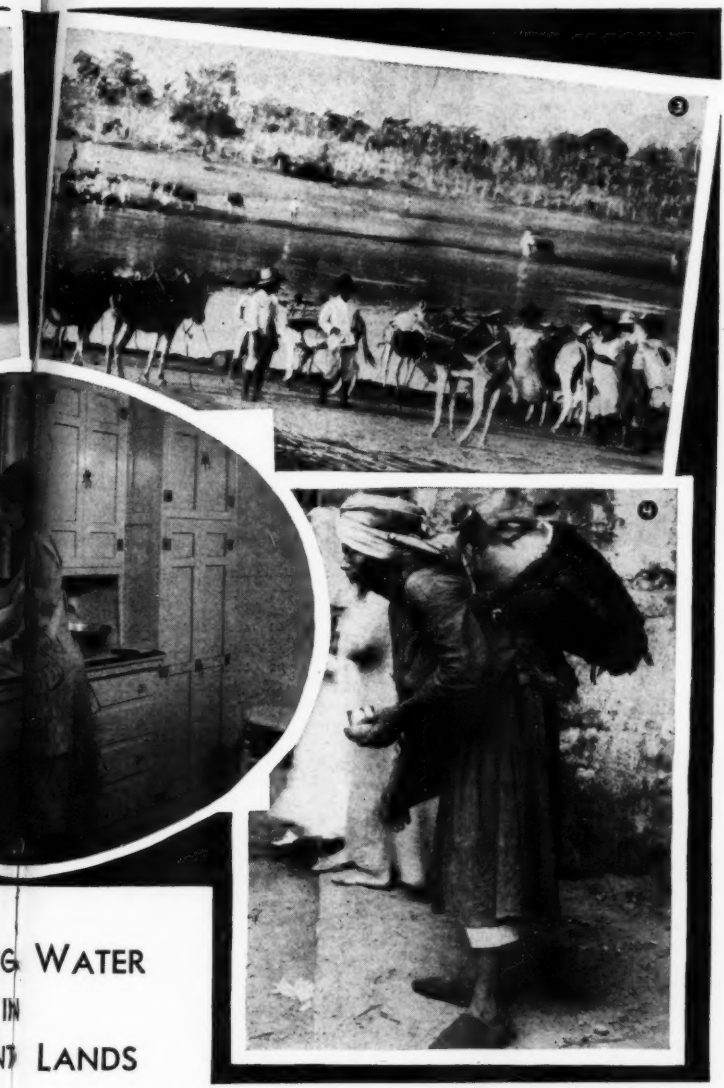
Water System Proves Profitable

M. E. Lewis, a dairyman of Ashland County, Ohio, has been keeping records of his operating costs and finds that his water system actually produced a saving of several hundred dollars during the course of the year. The annual overhead charges on his outfit totaled $31.00, of which yearly depreciation accounted for $15.40; interest and repairs, $10.54, and taxes, insurance and housing, $5.06. His annual operating charges amounted to $41.06, making a total cost for the year of only $72.06. Mr. Lewis reports that since his water system was installed he has saved an average of 4¾ hours a day, and has used this time for other productive work. The value of the time so saved was $538.37, leaving a net annual profit of $466.31. In addition, he reports a marked increase in production of milk, eggs and garden truck, which he attributes largely to the availability of plenty of water. Mr. Lewis milks 40 cows and, in addition to furnishing water for his herd, he uses from 100 to 150 gallons daily in cooling his milk. In all he used 410,625 gallons of water last year.



DRAWING WA
IN
DIFFERENT LA

1. The old bucket and rope still serves in many Dutch communities. The well here ill
water fountain at San Louis Potosi, Mexico, serves as a source of supply for local water car
during the dry season. This water is used for homes both in villages and on farms. **4.** A w
at a premium among the masses. Much of the city's water is from the Nile, and the Nile



G WATER
IN
LANDS

(Photos: Ewing Galloway and Keystone View)

ell here illustrated is in a rural community near Sontelande, Holland. **2.** The public ater carriers. **3.** Hauling water from a stagnant lake in Venezuela, South America, **4.** A water vendor of Cairo, Egypt. Cold water in the Egyptian capitol is always the Nile is none too clean. **5.** The modern American method of drawing water.

Mrs. Thompson believes in the ironer as a labor-saving device.

Eight Hours Labor to

SAVE ONE KILOWATT HOUR

By A. V. KREWATCH

RECENT time, labor and energy-consumption studies of electric iron and ironer, under average farm conditions on National Rural Electric Project show that the ironer requires considerably less labor than the hand iron.

	Ironer	Hand Iron
Pounds ironed per kwhr. of energy..	19.05	22.02
Pounds ironed by one person per hour..	20.82	7.97

The electric hand iron saves many steps to and from the hot kitchen range.

Mrs. Thompson, one of the National Project cooperators, uses an electric iron now, but she also has an ironer and uses it. For every kwhr of energy it uses more than the flatiron would use; she saves light hours of laborious pushing of the hand iron. Not only that, but with the ironer and electric washer she and her daughter do both the washing and ironing for a family of ten the same day. If the opportunity affords, they are not too tired to attend a party that night.

Electric ironing certainly saves a lot of walking, too, which is necessary with the old stove heated flat iron. For example, if a flat iron of the old fashioned type holds sufficient heat for ironing for four minutes, fifteen round trips must be made to the stove each hour. This is not so pleasant in warm weather with the stove going full blast.

Better Yields
and

CHEAPER HARVESTS

By FLORENCE L. CLARK

JOHN Bernhard and son, Byron, who own and work a 500-acre farm in northeastern Iowa near McGregor are served by an electric power station. They have small motors for several kinds of farm and home work.

Last spring they set up a rock crusher in a ledge of rock on their farm and installed a 15 horsepower motor to run it. They ground limestone for liming their own farm and for several of their neighbors, and also turned out a quantity of crushed rock. They surfaced the quarter mile lane leading into their farmyard from the paved highway with crushed rock, and made a circular drive in the barnyard of the same material.

This action on the part of Mr. Bernhard and his son set the whole neighborhood to surfacing drives into their farms with crushed rock obtained from the Bernhard quarry. The 15 h.p. motor was kept humming all spring.

Then in August came threshing time. The Bernhards had 100 acres in oats and barley, ready in the shock to be knocked out. Mr. Bernhard decided to thresh with his 15 h.p. motor. He called in a representative of the power company to help him rig things up. A line was run down to the corner lot where the threshing machine had been set up. The motor was belted to the threshing machine and 6,000 bushels of grain were threshed without a hitch.

Mr. Bernhard says it cost him only about $3.00 a day for power for threshing with his electric motor, whereas it had cost him $12.00 to $16.00 a day with other power, as he figured it. He predicts that, though he is the first one to thresh with electricity in northeastern Iowa, the time is very near when electricity generally will be used for threshing wherever groups of farmers are on an electric line and own and operate a threshing outfit.

The first farm in northwestern Iowa to attempt threshing by electricity was that of John Bernhard and son near McGregor.

ELECTRICAL HOUSEKEEPING

Conducted by
GAIL MEREDITH

Christmas Candles

ON Christmas Eve the little Norse children used to put a light in a window of their homes to light the kind Kristine on her way through the dark streets with Christmas gifts. In Austria it was to guide the Christ Child so he might not stumble in the night. In Germany the candle in the window lighted a table where food was set out. It burned all night long to invite the Virgin Mary in for food and rest when she passed through the village.

These lovely legends are the source of our own custom of setting a light in the window on the night before Christmas.

Electric Candles Safe

I am not sure how our European grandmothers dared to leave that little flickering candle in the window through the night. We are more chary of flame. But electric candles are safe and we can light our windows with them.

These Christmas candles are made up in countless ways. There are candles in wreaths with a solid base, candles in wreaths that hang in the window, candles that stand alone, that stand in pairs, in quartests and double quartets.

Electric lights have replaced the candles on the Christmas tree, too. But that is only part of the change. The trees of our childhood used to stand secret and dignified in the front room. The Christmas trees today are quite as apt to be right outdoors. Two little trees near the doorstep may be strung with light. The big fir tree down by the gate is not too far from the house to be its Christmas tree. Sometimes a whole group of evergreens are trimmed together with lights whose cord runs back to the house. These strings of light for outdoor Christmas trees should have weather-proof cord that melting snow won't hurt. They are made nowadays so that the failure of any one lamp has no effect on the others in the string. This type insures uninterrupted beauty for your Christmas tree.

Our times have changed but if we have twisted these old age customs to our own ends and transformed them beyond all recognition of their original purposes, still the lights in our friendly windows and the lights that outline the beauty of a stately fir before our door are symbols themselves of a new meaning. They speak of neighborliness, our Christmas greeting to our friends, and more than that, they reach out to everyone who passes down our road to say,

"Good evening, friend or stranger, whoever you are, we wish you Merry Christmas."

• • •

A Cup of Coffee

THE make up of a good cup of coffee never seemed more important to me than it did this summer while we were in England. I do not know what vile herbs they put together and boil up for cof-

fee on that tight little island, but I do know that the only refuge for a coffee lover is a cup of tea.

So I set up a little private investigation after I got back to find out what it is that makes our coffee good when it's good and why, "When it is bad, it is horrid."

There is one thing everybody agreed upon.

The second essential of a good cup of coffee is a clean coffee pot. The first, of course, is good coffee to begin with.

This might seem both obvious and simple. It really is neither. Some coffee pots work on a twenty-four hour shift. Someone shakes out the old grounds now and then, holds the pot under the cold water faucet to rinse it out, and starts over again. She either does not know that no one can make good coffee with the ghosts of yesterday's drinking haunting the pot, or she does not know good coffee.

Keeping an ordinary coffee pot clean is just a matter of good housekeeping, but keeping an electric percolator that cannot be put in the dishpan clean, is more a matter of knowing how.

Here is one way that works very well.

Immediately after you are through with the percolator, rinse it out with plain boiling water, empty it out, and dry it thoroughly, leaving the cover open.

Every few days, or once a week, depending on the number of times you make coffee, put in a tablespoon of soap flakes or a little baking soda in the pot, fill it about three quarters full of water, put the pump and basket in place and percolate that soapy water for fifteen or twenty minutes. Empty it out, rinse the pot again with plenty of hot water and let it dry. This will keep it sweet and clean.

When it came to the making, nobody agreed with anyone else. So I just picked out a good cup of percolated coffee and found out how it was made. But before I tell you, I want you to know a little bit about the woman who sponsors that coffee. Her name is Alice Foote MacDougall. A short generation ago she was left with three little children to support. The story of how she did it is one of New York's fairy tales.

"I had to have a long vision," she says in one of her accounts of her experience. "This was a business for life; a life sentence, self inflicted. I turned to coffee, for my husband had been a coffee job-

ber and I knew a little about coffee. Buying it in the green, blending it to taste, as I thought it should taste, grinding it just right and then delivering it into the home —that was my plan.

"And so my coffee business began. A packing box served as a desk, another as a chair—a pencil —a pad—$38.00 in the bank. That was my equipment."

From selling coffee by the pound she went to serving it with waffles in a little shop in the Grand Central station. Today, if you are visiting New York, someone is sure to take you to one of Alice Foote MacDougall's five—seven—nine—I do not know how many there are now—coffee houses for luncheon or dinner. Perhaps it will be the Cortile, imitative of a tiny Italian courtyard; perhaps the Piazzetta.

"When you come here" says Mrs. MacDougall of this next to the oldest of her restaurants, "you come to Naples, where life still holds some of its peasant simplicity, where day and night the simple tasks of the home are carried on in plain view.

"Italy may not be clean, but, my word, she washes! Clothes lines everywhere, gay and many colored garments, as if flowers growing on balconies were not enough in themselves to satisfy the Italian love of color. Every Itatlian town has a piazza or piazetta, according to its size or inclination. It usually faces the cathedral."

Here in her piazetta she reproduces with painted background the cathedral, the quaint old houses, and stretching between them, a clothes line, too.

A Coffee Recipe

Whichever you visit, the food will be superlatively good. And I think you will remember the coffee, just as I do, and be glad to know how it is made.

"Fill the pot with cold water, enough to cover the spout on the inside of the pot," says Mrs. MacDougall. "Fill the cup with finely ground coffee, covering the tube with your finger while doing so. Percolate for at least fifteen minutes. The longer the pumping continues, the stronger the coffee

"For breakfast coffee use a dessert spoon of finely ground coffee to a cup. For after dinner coffee, decrease the quantity of water. Never use boiling water."

• • •

Doing Dirty Dishes

EATING involves dishes, stacks of dishes three times a day, acres of dirty dishes in the course of a year. There is no public

laundry for dishes. Keeping them clean is distinctly a family job.

To most women it is one of the most disagreeable and monotonous jobs in housekeeping. Even when the children grow big enough to handle a dish cloth, many women say that keeping small girls on the job is harder than doing the dishes themselves. They are the ones to be interested in machines that will wash the dishes, machines that work without arguments or tears, pouting or delay.

There is no longer any question about what a dishwasher will do. It will wash dishes clean. It not only removes all of the food from the dishes, but the thorough washing action and the hot water used in the machine, hotter than we could bear our hands in, reduces their bacterial count, too. The dishes are actually cleaner than

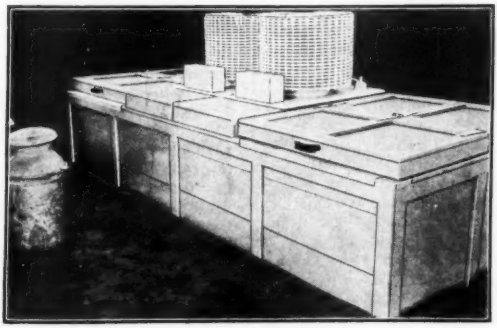
(*Continued on page 30*)

G. W. WADE SELECTS

GENERAL ELECTRIC

MILK COOLERS

to protect milk of prize herd



G. W. WADE, southeastern Virginia's pioneer dairyman, tried various types of cooler equipment. He states that General Electric Milk Coolers give wonderful satisfaction—are ideal for economically, dependably cooling the milk of his Brown Swiss Cattle. • The General Electric Milk Cooler, like the General Electric Refrigerator, possesses the distinctive Monitor Top, whose unparalleled record of operation in more than a million homes is proof of dependability vital in districts far from service. Its simple current saving mechanism, that is permanently oiled and hermetically sealed in steel—definitely minimizes operating expenses. Keep milk at top quality—get top prices—minimize bacteria count with General Electric Milk Coolers! The full 3-Year Guarantee protects against any service expense. Call your local General Electric Dealer now or write us. • General Electric Co., Electric Refrigeration Department, Section CZ12, Hanna Building, Cleveland, Ohio.

DOMESTIC, APARTMENT HOUSE AND COMMERCIAL REFRIGERATORS
ELECTRIC WATER COOLERS AND MILK COOLERS

Doing Dirty Dishes

(*Continued from page 28*)

they were when we washed them with dish pan and dish cloth.

Nor is there any question whether it is more work to take care of the dish washer than it is to do the dishes. Most dishwashers are self cleansing. The two hot rinses wash away every drop of the original dish water and leave the machine itself clean and sweet.

There are several dishwashing machines available today. Each differs slightly from the other in its construction and operation, of course. Some of them are part of a sink, and so are built right into the plumbing of the house, and some are portable machines that we can move about as we will.

The machine at our house is a round tub-like affair with three legs and an underslung motor. The legs have big casters so the machine rolls easily. It looks like a washing machine from the outside, but when you turn back the cover—and you do put it back instead of lifting it off, for it swings back on a heavy hinge—you know it is not for clothes because it is full of racks.

Racks for the Dishes

The top rack is for cups and glasses and serving dishes; the second for bread and butter plates and saucers, and the third for silver and plates and sauce dishes. In the very bottom of the washer are the paddles that throw the water around. They look like the blades of a fan.

Coming up from the side of the tub is a long goose neck arm with two separate tubes; one has a wide mouth at the end of an adjustable section of the arm. This is for filling the machine. The other has a narrow opening for emptying it. The adjustable tube slides in or out to change the length of the arm; it turns up so the wide mouth can be set directly under the hot water faucet. The motor pumps the water out of the tub, so emptying and filling the machine is no job at all.

Just Follow Directions

Learning to use the dishwasher was a perfectly simple process. I just followed the directions. After a meal I scrape the dishes and pile them in their proper place in the racks. Then I put a couple of tablespoons of soap flakes on the top of the propeller shaft, and a tablespoon of water softener in the mouth of the arm.

I make sure the drain lever is closed and then I start the motor. After the motor is going, I turn on the hot water and let it run until soapy water begins to spurt out the lower opening on the under side of the arm. Then I turn the water off and let the motor run for about five minutes.

When the dishes are washed, I lift the lever and the motor pumps the suds out of the machine. I refill it, using the water softener, but not soap. This time the motor runs about a minute. The last rinse is made with clear, hot water, not even the water softener.

I roll the machine from the sink over to my cupboards and lift the cover. The dishes dry almost instantly. I wipe the glasses a little and give the silver a dab or two, but there is not much wiping to do and there is no walking back and forth to put the dishes away.

I wash the pots and pans while the machine is doing the other dishes. I wipe off the stove and wash the work tables, too. Many of the cooking dishes could be washed in the machine, but those that have had food burned or stuck

to their sides need so much scraping first that I find it quite as easy to do them in the dishpan. Besides this way I come out even. They are all done at once.

"What does it really save?" ask my friends curiously.

A certain amount of my time to begin with. I wash the dishes once a day taking, say, fifteen minutes for the job.

An hour would not have done it before. That saves me three working days of almost eight hours each every month.

It saves my disposition. I did not like to wash dishes and I hated to have my fingernails brittle and broken from long soaking in greasy water.

It saves a certain amount of laundry, too. It takes far fewer dishtowels to flick off a few drops of water from the silver or put a polish on the glasses than it took to wipe a sink full of dripping dishes.

It gives me cleaner dishes with less effort.

I like a dishwasher.

Stable Cows in Hot Weather

That dairy farmers may secure just as much profit from comfortable stanchions and drinking bowls in the heat of summer as in winter may be concluded from the statement of Prof. Earl Weaver of the Oklahoma experiment station that a good dairy barn can be almost as useful in the summer when the cows need protection from heat and flies as in the winter. To secure the best results from confining the cows during the afternoon there should be some bedding in the stalls, feed in the manger and the barn should be darkened to keep out flies. Removing the window panes and tacking burlap in the place is a good plan, according to Prof. Weaver. It has also been found that alabastine blue put on the inside of the windows with a brush makes the barn dark so the flies stay off the cows. This may be easily washed off when desired.

Marvelous New Animal Clipper

With Universal Motor for 110-120 Volt

$18.50

with built-on Aluminum Handle $19.50

For 6-Volt auto battery and other special voltages slightly more

Clips Cows, Horses and Dogs

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Just plug in the long rubber covered cord with unbreakable rubber plug in any light socket, and clip twice as quick as ever before. Perfect balance, easy grip in any position. Marvelous motor; great reserve power. Satisfaction or your money back guaranteed by world's oldest established and largest maker of clipping and shearing machines. At your dealer or sent direct $2.00 with order, balance on arrival.

Get complete catalog describing this and other models of the world's greatest line of clipping and shearing machines. Chicago Flexible Shaft Company, 5524 Roosevelt Road, Chicago, Illinois.

Satisfaction or Your Money Back

Cullman *Electric* **PUMP DRIVE**

Insures an Economical Water System

Install the Pump Drive first. Then add other Cullman units such as float or pressure switch, air chamber, and casing head, thus building up a complete water system for house and barn.

The Cullman Drive insures the economy of your system.

Send for folder on water systems.

CULLMAN WHEEL CO.

1342 Altgeld St., Chicago, Ill.

ON THE AIR

Conducted by
JEROME J. HENRY

Tells How to Avoid Those Growls We Hear

NO one is going to be surprised with an unheard of growl or disagreeable hissing caused by coughing or "whistling out an 's'" before the microphone if John Carlile, production director of the Columbia Broadcasting System, has his way.

The microphone is extremely sensitive to sounds that "just don't belong" in the broadcast, so Carlile has prepared a sextet of "don'ts" for radio speakers, to be remembered if they hope to keep their audience pleased with a clear presentation that is not interspersed with sounds of rattling papers, hissing, and coughs that result in a rousing roar through the loudspeaker.

Among the things for the amateur radio speaker to remember are: Don't orate in the style usual to the platform. A friendly conversational tone is best; don't clear the throat or cough before the microphone; don't hiss syllables; and don't guess at the number of minutes a speech will require.

This information probably serves to explain the disconcerting noises that sometimes reach the fireside loudspeakers of town and country radio enthusiasts; however, careful attention is rapidly improving and perfecting radio presentations.

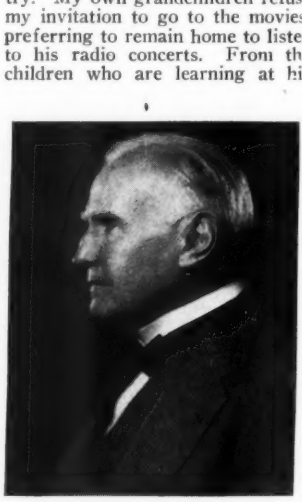
• • •

Young People's Musical Interest Is Roused

The development of an American school of great composers and musicians, Walter Damrosch's lifelong dream, is to be realized through the medium of the radio music appreciation courses, believe many music leaders.

For example, there's the opinion of Madame Ernestine Schumann-Heink, who says: "Never have I seen the promise of such a great musical future for this country. Little children shame me by their knowledge of music. Everywhere I see rich talent in embryo, and there is going to be a greater development within the next few years.

"One man is responsible for it all—Walter Damrosch. I have been amazed to see the result of his work in all parts of the country. My own grandchildren refuse my invitation to go to the movies, preferring to remain home to listen to his radio concerts. From the children who are learning at his



Walter Damrosch, whose Music Appreciation broadcasts are winning the sincere attention of more than 5,000,000 children and an equally great number of older people. He is credited, by a majority of authorities, with the building up of the greatest degree of musical knowledge and appreciation the country has ever known.

feet will come the greatest artists of tomorrow."

Walter Damrosch's Music Appreciation Hour may be heard every Friday morning through a nation-wide network of 61 stations.

Many thousands of children are using his instructor manuals, which may be obtained by request from the National Broadcasting Company. It has been conservatively estimated that five million school children are among his audience.

• • •

Colleges Are Giving "Air" Courses

Schools of the air are becoming a reality.

Many state agricultural colleges are operating broadcasting stations and securing splendid results with educational broadcasts. For instance, there's station WSUI at Iowa State University, which is featuring a fine educational program schedule. WILL, the University of Illinois station, features much of interest from the college of agriculture.

Across a few hundred miles of country up into the prarie regions of the Dakotas there's station KUSD, at Vermillion, the University of South Dakota. Kansas boasts of two college stations, KSAC at Manhattan, on the air with a full daytime schedule, and KFKU at Lawrence, the University of Kansas.

An excellent farm program comes through KVOO at Oklahoma City. This is planned by the Oklahoma A. and M. College. And WHA at the University of Wisconsin, a broadcasting pioneer, is constantly improving its presentations in both the musical and educational fields.

• • •

Before Long We'll Be "Lookers-In"

Wondering whether "lookers-in" will become as popular as listeners hasn't much to do with radio en-

Hens can't drink ICE!

OAKES
Never-Dry Electric Heated Drinking Trough

Hens will drink 25% more, lay better and thrive better, if you heat their water in winter. This trough has automatic float control of water level. Multiple electric heater, with three stages, controls temperature of water. An overflow, combined with continuous water flow, keeps water cool in summer. With or without heater. Write for catalog, prices, etc.

OAKES Electric Heater with Fount

Sanitary, easy to clean—Automatic float valve regulates water. Griddle type electric heater. Keeps water warm. No fire hazard. No dangerous gases. No lamps to clean, trim or fill. Write for catalog, prices, etc.

THE OAKES MFG. CO., Dept. 77, Tipton, Ind.

PAINT *with* ELECTRICITY

Easier - Quicker - Cheaper - Better!

Speed up paint jobs—get better results on any kind of a paint, varnish or oil job. Sprays insecticides effectively. Earn money doing neighbors' jobs—save money on your own. **Fully guaranteed.**

NOW $29.65 Complete

Send cash, money order, or draft, or $5.00 deposit and balance C.O.D., plus postage to:

Agents Wanted

H. M. Reynolds & Co., 327 North 16th Street, Philadelphia, Pa.

REG. U.S. PAT. OFF.
THE
PaintoMister
MADE IN U.S.A.

joyment, but it's interesting to known that visual announcements are shown over the Columbia Broadcasting System's television station W2XAB in New York and being seen over a wide territory.

Dances, silhouettes, and visual announcement signs have been reported seen by television as far as Indianapolis, Toronto and Chicago. This means that, under good conditions, the programs may be seen at a distance of 1,000 miles.

The visual announcements are causing considerable comment. They may be likened to the subtitles of the early movie, and are made with blackboard cloth on which heavy chalk letters have been impressed.

• • •

Paul Whiteman Earns His Sleep

Paul Whiteman sleeps but four hours a night.

The Dean of modern music rises every morning at six-thirty; takes a swim in a pool; exercises for twenty minutes, and then eats his breakfast of a double order of grapefruit juice, thin unbuttered toast and black coffee, and incidentally has been successful in losing two of his four chins.

He is in his office by nine o'clock; from one-thirty until after three he may usually be found in an audition room, where he is ever eager to help young, undeveloped talent. Then Whiteman spends a half hour looking over the output of the music publishing firms—the next hour is spent looking over the arrangements for his programs. Following dinner in the evening, he reads or plays chess or checkers, then reads the papers, enjoys the company of many friends. At ten he is hard at work directing his orchestra. At two the dancing ceases, and that is Whiteman's favorite time for a half hour of rehearsal. Then to bed for a well earned four hours of sleep!

In her right arm, Irma Glen, popular radio organist, is holding a 100,000 watt tube. In her left hand is what is known as a "peanut" tube used in a receiving set. The large tube is used in the WENR transmitter in Chicago.

• • •

Farm Bureau Convention to Be Broadcast

Progress in home modernization will be given extensive attention in the American Farm Bureau convention program to be broadcast in the National Farm and Home Hour on Wednesday, December 9.

At the convention's exposition there will be a large display telling of accomplishments in extending the use of electricity on the farm.

The broadcast, featuring leading authorities at the sessions, may be heard over a nation-wide network between 12:30 and 1:30 p. m., Eastern Standard Time. It will include many important topics closely related to vital agricultural problems.

• • •

Studio Chatter

Arthur Allen, one of the Stebbins boys, soon will begin a series of personal appearances within a radius of 500 miles of New York . . . and the Stebbins boys home spun humor captivates the radio audience—they've won high praise

for the homely dialogue built around life in Bucksport, Maine.

William Merrigan Daly, conductor, throws a musical score on the studio floor after his band has finished playing it.

Eddie Cantor tackles his broadcasting like a real job; he takes off his coat and tie, clears his throat, awaits his cue to begin, and uses many fancy arm gestures.

James Melton goes on yacht trips and insists that his guests eat baked beans cooked by himself.

Johnny Wolf, the clown of the Farm and Home Hour Homesteaders orchestra, marches through every number in that tempo with his trumpet at "shoulder arms" just to entertain himself while he doesn't have to blow the instrument.

Shakespeare didn't meet the radio, but he did remark, "Ah, stand by" (Antony and Cleopatra); "His lecture will be done ere you have tuned" (Taming of the Shrew); "And my dial goes not true" (All's Well That Ends Well); "And those musicians that shall play to you hang in the air a thousand leagues from hence" (Henry IV).

When Lee Sims hits a wrong note he frowns as if he would like to chew the piano. . . . And Sims says he feels like a monkey in a cage when people watch him from studio observation booths.

"Red" Ingle of the Ted Weems orchestra is still snickering over a letter from a girl in Oklahoma, who wants to know if the Red Eagle who sings hot songs is an Indian.

Weighing considerably more than 100 pounds doesn't bother Mildred Bailey, popular blues singer. "I earn my living with my voice and not my figure," she once said.

The type of gifts received by radio artists has been somewhat changed by the economic situation. Many seem to be selecting what is nearest at hand. A popular band conductor received a crate of apples from an over-productive farmer. Now he wonders if fellow artists are being presented with bales of cotton, or neat little packages of wheat.

THE HANDIEST LIGHT IN THE WORLD
Use it anywhere
Unlike all others. You can stand it on desk or table, clamp it on back of chair or bed, or hang it as wall fixture near shaving mirror or dresser. Ideal for lighting dark corners in closets, workshop, storage room or creamery. The neck bends and shade tilts to throw light where you want it. A beautiful lamp made of heavy gauge brass and finished in either statuary bronze or a soft pastel green. Equipped with extra long (9-foot) silk cord and split plug. Priced from $2.00 to $3.50. Get a Buss Light at your local store or write Bussmann Mfg. Co., 2526 University St., St. Louis, Mo.
SHADE TILTS ON PATENT SHADE HOLDER
LAMP TWISTS ANY WAY ON BALL JOINT
LAMP HANGS BY SLOT IN BASE PLATE
BASE UNSCREWS TO FORM CLAMP
BUSS Light

NEW EMPIRE WATER HEATER!

For Sterilizing Milkers Heating Feed, Etc.

180 deg. in 37 min.

New, portable, electric Empire Water Heater sterilizes milking machines more quickly and economically. Surprisingly low priced. Cadmium plated interior. 4 heating elements. Mineral wool insulation stops heat loss. Pilot light stops current waste. Elements easily replaced. 1800 watts. 220 volts. There are countless uses for this low-priced water heater. *Send today for literature.*

METAL WARE CORPORATION
Two Rivers, Wisconsin

Questions and Answers

Conducted by H. J. GALLAGHER
Agricultural Engineering Dept.
Michigan State College

Question 1: *I have been reading your Questions and Answers in* ELECTRICITY ON THE FARM. *I have a 7½ K.W., D.C. generator that I operate for lights. I have been informed that I could get a coil that will operate a battery radio set from this current but I have been unable to find a manufacturer. • The Electro-Acoustic Products Company of Chicago have a converter with their Public Address System that sells for* $60.00. *Will it work on a radio? Or could you tell me of something cheaper and more practical?*

Harry Smedley, Waldron, Ark.

Answer 1: The most practical and the most simple way to operate your battery radio is to charge the radio A battery from a lighting circuit. This can be done any time the generator is running. The radio A battery is six volts, your generator is either 32 volts or 110 volts, consequently it is necessary to reduce the voltage of the lighting circuit before connecting to the radio battery. This is easily done by connecting lamp sockets in series with the battery so that the current flows through the lamps before reaching the battery. Connect positive side of battery to positive side of circuit.

If your service is 110 volts, use five 100-watt lamps or a screw base heating element from an ordinary reflector type heater. If your service is 32 volts, use two 75-watt lamps. These resistances will limit the flow of current to the battery to approximately 4.5 amperes.

Question 2: *I have an Emerson 1-12 H.P. motor for direct current and I wish to change it or have it changed to alternating current. If it is possible to do the work myself I should like to do it. I would appreciate very much some references to literature which will deal with the subject. If it is not possible for me to do it I would like to know where I can have it done and the approximate cost of such work. The motor is No. 71355, Type D60219AD Volts 115, Amp. 1.13, Speed 1150, shunt.*

Frank Denker, Enid, Oklahoma

Answer 2: I am not familiar with the particular motor you refer to. I would suggest that you write to the manufacturers of the motor or examine the name plate on the motor, which ordinarily has data of this kind. Small motors, as on vacuum sweepers, fans, etc., are often constructed to operate on either a.c. or d.c. current.

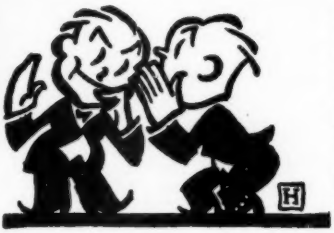
To convert a d.c. motor to an a.c. motor is practically the same as building a new a.c. motor. The construction and operation characteristics of the two kinds of motors are so different that practically no relation exists between them. It would be less costly and more satisfactory to discard the d.c. motor and purchase a new a.c. motor.

Question 3: *Can a concrete stock tank be packed with sawdust and heated with electricity as cheap as with coal?*

D. B.

Answer 3: No. Electricity is more expensive than coal for water heating in stock tanks. Insulation makes a big difference in the heat required and retained. Sawdust is a reasonably good insulator when dry, but it loses its insulation properties when wet. A more complete answer to a similar question was published in the January, 1930, issue of ELECTRICITY ON THE FARM, page 40.

You're in on this, too!



As a reader of ELECTRICITY ON THE FARM you are privileged to obtain complete information and manufacturers' literature on any of the 200 applications for electricity you are planning to make by simply filling out and mailing the coupon at the bottom of this page.

First study our advertising pages, and, if you can't get what you want through them, use the handy coupon.

FOR THE DAIRY
Bottle Washers - Churns - Cream Separators - Dairy Sterilizers - Milk Coolers - Milking Machines - Clipping Machines - Grooming Machines - Dairy Water Heaters

FOR POULTRY KEEPERS
Incubators - Brooders - No Voltage Alarms - Time Switches - Reflectors - Drinking Fountain Warmers - Ultraviolet Light - Egg Testers - Oat Sprouters

FOR WATER SUPPLY
Automatic Water Systems - Pump Jacks - Irrigation Systems - Sewage Disposal Equipment - Plumbing Fixtures - Water Softeners - Water Heaters

FOR THE HOUSEHOLD
Ironing Machines - Dishwashers - Flat Irons - Household Motors - Electric Clocks - Ice Cream Freezers - Food Preparing Machines - Ranges - Hot Plates - Refrigerators - Sewing Machines - Table Appliances - Vacuum Cleaners - Clothes Washers

FOR REPAIR AND MAINTENANCE
Soldering Irons - Tool Grinders - General Purpose Motors - Drills - Paint Sprayers - Saws - Woodworking Machinery - Concrete Mixers

FOR ENTERTAINMENT
House Current Radio Sets - Radio Battery Chargers - Radio Tubes - Home Movie Projectors—Electrical Toys

FARM MACHINES AND EQUIPMENT
Feed Grinders - Ensilage Cutters - Corn Shellers - Hay Hoists - Feed Mixers - Fruit and Vegetable Graders - Stationary Spray Plants

MISCELLANEOUS
Burglar Alarms - Portable Heaters - Heating Pads - Floor Polishers - Ventilators - Hot Bed Heaters - Floor and Table Lamps - Lighting Fixtures - Wiring Supplies.

TEAR OFF HERE

ELECTRICITY ON THE FARM, 24 W. 40th St., New York

Without cost to me, please have manufacturers send complete information on the following Electricaay Operated Equipment which I am thinking of buying:

....

....

My name is.....

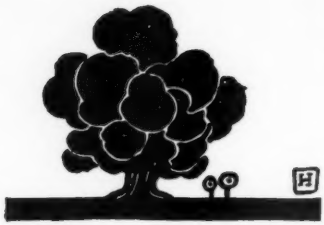
Address .....

.....

I get electricity from.....

.....

12



Under The CHESTNUT TREE

An Age-Old Problem

The parking problem seems to have been with us a long, long time. If I recall correctly, Noah spent forty days trying to find a good place to park his Ark and then finally had to edge in on the top of a mountain.

Webster, they say, spoke perfect English. Will Rogers says he could if he wrote his own dictionary.

Sick Inside

Mother, I can't go to school today.
Why?
I don't feel well.
Where don't you feel well?
In school.

Logical

Rastus: "Sambo, if de good Lawd had to take away either the sunshine or the moonlight which would you prefer?"

Sambo: "Why de sunlight of co'se. De sun shines in de daytime when it's light anyway, but the old moon she light up things when it's dark."

First Lawyer: "You're a cheat."
Second Lawyer: "Your a liar.
Judge "Now that these parties have identified each other, we will proceed with the case."

The Truth

An old negro went to the office of the Commissioner of Registration in a Missouri town and applied for registration papers.

"What is your name?" asked the official.

"George Washington," was the reply.

"Well, George, are you the man who cut down the cherry tree?"

"No suh, I ain't de man. I ain't done no work for nigh onto a year."

Ouch!

A taxi-driver recently got the worst of a wordy bout.

An old man with a wheelbarrow wouldn't get out of the way and the driver shouted: "You ought to be wheeling a baby-buggy."

"And you ought to be in it," the old man answered.

Herbert Percy said to his wife: "I read here that 'Woman without her man is a savage.'"

She looked over his shoulder and said: "Now, read that again."

And he read, slower: "Woman! Without her, man is a savage."

Sufficient Punishment

A man who was arrested for shooting a stork was released when it was discovered that he was the father of twenty-five children.

First Cannibal: "The chief has hay fever."

Second Cannibal: "Serves him right. I told him not to eat that grass widow."

Couldn't Shoot a Pie

Wearing the latest things in tweed suits and leggins, a man walked into a poultryman's shop and asked for a brace of pheasants.

"Sorry," said the shopkeeper, "but we are completely sold out of pheasants. I have some very nice veal and ham pies, though, and fresh, too."

"Don't be ridiculous," snorted the man. "How the dickens could I go home and say I had shot a veal and ham pie?"

A little boy was running madly along the street. A kindly old lady stopped him and said: "My dear little boy, where are you going so fast?" The little boy answered: "I'm running for a doctor; my grandpa's sick!"

"Now," replied the old lady, "you run right back to grandpa and tell him he only thinks he's sick."

A couple of days later, the kindly old lady saw the little boy in the street again. "My dear little boy," she said, "is your grandpa all right now?"

"Yes," replied the little boy, "he's all right now. He thinks he's dead, and we are going to bury him next Sunday!"

BELL FEED GRINDERS

For Operation by Electric Motor

Over Seventy Years' Experience

built into Bell feed and food grinders, insures lower first and operating costs than others of equal capacity.

For all grains. For 1/6 to 25 H.P. motors.

Our prices are on a par with your grain. Your power company has our prices, or write us for catalogue and prices, naming your power company.

1858 THE C. S. BELL CO. 1931

McDowell St., Hillsboro, Ohio

Modern Machinery Lightens Labor

The implements and machines that distinguish the modern farm would justify their existence if they accomplished nothing more than to free farm workers from the back-bending muscular toil of other years that made men old at forty. More is involved here than mere physical relief from drudgery. When the human body is relieved from daily weariness, the mind is released and stimulated to keener consideration of daily problems.

The time required for work has been diminished, so that hours enough can be found to attend to the details, sometimes neglected, that often determine success or failure. The present day farmer, more nearly than ever before, can find time to farm as well as he knows how. He is better equipped than ever before to utilize to the fullest the aid of science, industry's co-laborer in the task of mitigating costs and enlarging yield.

The farm day has not only been shortened, but the means provided for its extension when desirable. For nearly every farm operation there are a few best days of the year. Modern power equipment and lights abolish the darkness and make 24 hours available when economy decrees their use.

Last Resort

Auto Driver: "Have you some gasoline that stops knocking?"
Attendant: "Yes, sir."
Auto Driver: "Then give my wife a glass."

● PAUL ●

WATER SYSTEMS

Provide Running Water at Low Cost

WRITE US

THE FT. WAYNE ENGINEERING & MANUFACTURING CO.

1722 N. Harrison St.
FORT WAYNE, IND.

Valuable Information

All the manufacturers you will find represented in our advertising pages have interesting and valuable data about their equipment which is yours for the asking. When writing, be sure to mention ELECTRICITY ON THE FARM.

The LAUSON

DIRECT GEARED ELECTRIC JACK

Model No. 3

Built like a high grade auto transmission.

Also interchangeable motor or gas engine.

The Lauson Corporation
700 Michigan St., New Holstein, Wis.

Yours for the Asking

Check over the list below and write directly for any of the free bulletins that interest you. Manufacturers will gladly supply this information.

Don't forget to mention ELECTRICITY ON THE FARM when writing.

Battery brooding of chicks as well as canopy brooding with electric current is shown in the 16 page booklet on "Oakes Electric Poultry Equipment" which can be obtained by writing Oakes Mfg. Co., Inc., Tipton, Ind.

•

How can I lower feed costs is the question which will be answered by writing for booklet to Prater Pulverizer Co., Chicago, Ill.

•

Bulletin No. 22 "Shearing the Farm Flock" will be sent to those requesting it by Chicago Flexible Shaft Co., Chicago, Ill.

•

Specifications and description of portable motor grinder for farm use, Form 376-A, can be obtained by writing The Master Electric Company at Dayton, Ohio.

•

"Electric Milk House Equipment" is the title of an attractive folder explaining the use of milk coolers, water heaters, and dairy utensil sterilizers, which may be obtained by writing Esco Cabinet Co., West Chester, Pa.

•

Bulletin 14-1000 describes "Century Portable Power Unit" consisting of an electric truck and starting equipment. Write Century Electric Co., St. Louis, Mo.

•

"Fresh Running Water" is the title of a new four page folder which can be obtained from The Dayton Pump & Manufacturing Co., Dayton, Ohio. This folder illustrates and describes several of the most popular models of Dayton Water systems.

•

"A Money Maker for the Modern Dairyman" is the title of an interesting folder on electric grooming which can be obtained by writing the Hinman Milking Machine Co., Oneida, N. Y.

"Cullman Electric Pump Drive" is the title of a folder which can be obtained from the Cullman Wheel Co., Chicago, Ill.

•

"Wherever There Is Life There Is Need for Running Water" and why is described in the water service booklet obtainable from Fairbanks, Morse & Co., Chicago.

•

The Lauson Corporation, New Holstein, Wis., have a complete booklet of instructions for installing electric pump jacks properly; available for the asking.

•

Owners of homes and camps beyond sewer lines can obtain detailed information on complete "Certified" Sewage Disposal Systems by writing San-Equip, Inc., Syracuse, N. Y.

•

A convenient portable unit for driving belted farm machinery is described in the booklet "G. E. Portable Farm Motor" (GEA—192G), and will be supplied upon request to General Electric Co., Schenectady, N. Y.

•

The "Reel Blade," a paper of interest to poultry raisers and hatcherymen, can be secured by writing to Ira M. Petersime & Son, Gettysburg, Ohio.

•

"Why Grind Feed on the Farm" is explained in a bulletin issued by the C. S. Bell Co., Hillsboro, Ohio.

•

"The New and Easy Way to Paint" can be learned by writing Paint-O-Mister, c/o H. M. Reynolds & Co., 327 No. 16th St., Philadelphia, Pa.

•

For sterlizing milkers, heating feed, etc., a new water heater has been developed. For literature describing it write Metal Ware Corp., Two Rivers, Wisc.

Modern

"Are you wearing spectacles, old man?"

"Yes. Through cross-word puzzles I've contracted an optical defect. One eye travels vertically and the other horizontally!"

A mother was showing her little daughter a story book, and said: "Look here, little girl, this is the papa deer, this the mama deer and this is the baby deer." And the little girl said: "Yes, Mama, why has not the mama deer got handles on like the papa deer.

Letting the Lights Shine

PLENTY of light, both night and day, is regarded as essential for the economical production of eggs under present market conditions. Eggs which will sell for the most money will be produced during the next few months when the days are shortest. Hens cackle oftener in houses which are light and sunny during the day and which have the benefit of artificial illumination at night.

Dark walls and ceilings absorb light and conceal hiding places for vermin. Before the pullets are housed for the winter, whitewash should be applied with a sprayer, preferably with some pressure in order to penetrate into cracks and crevices. A highly recommended formula consists of the following:

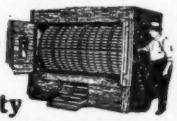
One heaping quart of dehydrated lime.
One and one-half quarts of lime sulfur.
One ounce of alum.
One tablespoon of salt.
One bar of laundry soap.
Four gallons of water.
The alum should be dissolved in hot water and an emulsion made from the soap by chipping it up and heating.

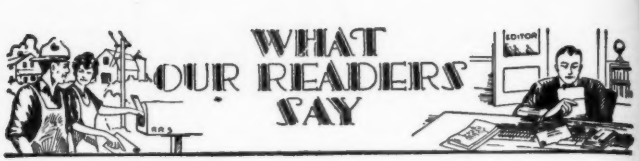
This should then be thinned down to the desired consistency for spraying.

The use of the all-night light has been found most satisfactory at the Ohio experiment station for securing winter egg production from hens and late hatched or slowly maturing pullets. Only a 25-watt bulb, properly located, is necessary to serve a pen of 200 layers. This practice is little if any more expensive than morning or evening lights when more intense light is used. Success with an all-night light is largely determined by having warm water both day and night; suitable feeders providing ample feeding space, and a light located over the feeding and drinking equipment so the birds can easily see to eat and drink. If the light is shaded, it should not prevent the illumination from reaching roosting quarters or from reaching most of the floor space so the birds can see to go to and from the roosts.

ESCO
Reg. U. S. Pat. Off.
Electric Milk House Equipment
Milk Coolers for cans . . . and for bottled milk . . . Dairy Water Heaters . . . Dairy Utensil Sterilizers.
Write for full details
ESCO CABINET CO.
WEST CHESTER, PENNA.

Page 37
is for your
convenience.
Why not use it?

MAKE MONEY!
Start a Hatchery in Your Community

PETERSIME INCUBATORS are easy to operate, use little current and produce large hatches of high vitality chicks.
Write for New Free Catalog to learn how to start a profitable business of your own.
IRA M. PETERSIME & SON
E. F. 38 Gettysburg, Ohio



Excuse Us!

Sincere thanks for the $5 check. I am so glad that you considered my title worthy of such recognition. However, I fear that you are giving my husband the credit, as your communication is addressed to Mr. Walter Jensen. Pardon this reminder, but he takes pleasure in teasing me about it.

Your magazine is fine.

MRS. WALTER JENSEN,
R. I, Sunnyvale, Calif.

• • •

An Efficient Servant

The electric pump is a necessity in the farm home because it furnishes water for washing and water for drinking. Without water in the housenold, bathrooms and electric washers would be out of place. Think of the pleasures of having an up-to-date water system in your home and I am certain that you will agree that the electric water pump is the most efficient electrical servant.

M. D. CONNORS,
Stanley, N. Y.

• • •

Comes to My Aid

The kitchen isn't where I want to spend any more time than necessary, and my electrical servant helps me out of it. Fruit to be canned, berries to be jammed, don't keep me from club or an all-day meeting. My electrical servant comes to my aid and when it is convenient I work them up.

LILA STUBBLEFIELD,
R. 4, Caldwell, Idaho.

• • •

A Woman's Choice

What more useful electrical servant than a washing machine can be found? There is ever an increasing need for cleanliness and we must do this as quickly and cheaply as possible this modern day. In a few hours a large wash can be done at a small cost. No wearisome rubbing on a board and wear and tear on clothes are necessary. The finest and heaviest garments can be washed with equal satisfactory results. A device that saves so much labor, does such satisfactory work so quickly and cheaply would be any woman's choice of electrical servants.

MRS. HENRY CHAPMAN,
R. F. D. 4, Monticello, Iowa.

• • •

A Pleasure Now

My automatic electric iron has made what was to me a disagreeable task a pleasure. In the hot summer months the ironing may be done in the coolest room in the house. If irons must be heated, a hot fire must be kept and the work done in the same room, making it almost unbearable. Or if in another room, endless steps must be taken. While I haven't many electrical servants yet, I hope to have more in time.

MRS. WM. SHARPE, JR.,
R. 4, Fowlerville, Mich.

CLASSIFIED ADVERTISING

The LYON ELECTRIC COMPANY manufacture electric poultry equipment exclusively. Long, practical experience in the highly developed California rural electric field enables us to furnish quality devices at reasonable prices. The LYON line includes: Brooders—Incubators — Egg Testers — Burglar, Temperature and Power-off Alarms — Heating Elements—Thermostatic Supplies—Time Switches—Wiring Supplies. Write for catalog today. LYON ELECTRIC COMPANY, 2075 Moore Street, San Diego, California.

GREETINGS of the Season "A MERRY CHRISTMAS and A HAPPY NEW YEAR" Sincerely, MIDNIGHT ALARM SYSTEM, 2327 Chickasaw, Cincinnati, Ohio. A good resolution for the coming year is, BETTER FIRE and BURGLAR ALARM PROTECTION for the entire premises in 1932.

New 8" Swing Back Geared Screw Cutting Precision LATHE for the farm shop. $100 and up on EASY TERMS. Supplied with Countershaft or Motor Drive. Write for Circular No. 8. SOUTH BEND LATHE WORKS, 571 Madison Street, South Bend, Indiana.

MERCHANDISING SUPPLEMENT

Electricity on the Farm

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d monthly in the interests of electrical dealers, manufacturers and their representatives, and service representatives of power companies, by the Case-Shepperd-Mann Publishing Corporation 24 West 40th Street, New York, N. Y.

Vol. 4 DECEMBER, 1931 No. 12

Electricity is Rapidly Finding New Applications in Farming. Here is a Motor Driven Chicken Feeder for Service at Shipping Points.

SELLING ELECTRICAL APPLIANCES TO FARMERS

By J. E. WAGGONER

"'THE more you tell the more you sell' expresses my experience in selling equipment to farmers," said Mr. Milton Krapp, of the Mokena Hardware Co., Mokena, Ill., the other day when I asked him about his success in selling electrical equipment and appliances to his farm trade.

"I had been in the hardware business for a long time," said Mr. Krapp, "but never have I found farmers and their wives as keen to know all about the details of appliances and what they will do as at the present time. They are closer buyers than they have been for years. They are well posted, too. They seem to have read about the appliances before they come to my store to talk over purchases. Frequently farmers ask for an appliance by trade name—telling me what they want. They ask for irons that won't get too hot, or toasters that turn the toast. This shows me that they are getting information from some source and that they know in advance in some measure at least what kind of equipment they want before they come in to make the purchase."

Appliance Sales Maintained

Are farmers buying electrical appliances was my next question.

"About the same as a few years back," was Mr. Krapp's reply. "My business has been fairly satisfactory this year. Up to date I have sold about $1400 worth of electrical equipment and appliances to farmers in my territory. I feel very much pleased over that volume. It is better than I had anticipated. As most of the sales have been made for cash, this business represents a fair profit, considering economic conditions. I feel from observation and remarks that farm women have made that most of the appliances such as electric irons, electric percolators, electric toasters, hot plates, waffle irons, etc., are purchased with chicken and egg money. When it comes to a major investment in a water system, refrigerator or range they have to draw on the major sources of farm income. This brings in the farmer, his wife and sometimes the boys and girls into the deal."

"My farm customers are not satisfied with 'just any old thing,'" states Mr. Krapp. "They know quality as well as anybody. And another thing, too, that many dealers have forgotten. Farmers appreciate electric service more than anyone else and are the greatest potential users of appliances of any class in my territory, and from observation I rather imagine the same is true in other sections. From comments made by my farm customers I am sure they enjoy using their appliances more than most city folks. Even though electric service is rather new on lots of our farms and there are many farmers who want service but are too far from present lines, they aren't taking electric service for granted around her and so are real prospects for more and more appliances and equipment. They have a just pride in having electric service in their homes, and I don't forget that in my sales talk in selling appliances and equipment. The pride that they should have, in their good fortune in having electric service, is a real sales asset to me in selling equipment to my farm customers."

During my interview with Mr. Krapp I was amazed at how closely his experience checked and cross-checked with a survey of the sales of electrical appliances conducted

recently among ELECTRICITY ON THE FARM readers. Take, for instance, toasters. The survey shows that 37% of our readers have electric toasters. The next question that naturally comes to mind is how does that compare with urban or city ownership of toasters. It is mighty close. The recent survey made by the Research Department of the N. E. L. A. reports that 40% of urban families have electric toasters. When one considers that most of the advertising and sales effort on toasters in the past has been directed at urban population, leaving the farm field for the most part uncultivated and untouched, isn't it surprising that so large a percentage of farmers use electric toasters? What would be the result if a real effort was directed at the farm field? Doesn't the fact that so nearly the same percentage of farmers use toasters as city people support Mr. Krapp's contention that the farmers appreciate electric service and are giving more attention to using it in all the possible ways?

With the coffee percolator the difference in percentage of users on the farm and in the city is wider. The urban families report that 30% have electric percolators, while 16% of the readers of ELECTRICITY ON THE FARM use this convenient appliance. This doesn't mean that less farmers drink coffee or that they don't enjoy a cup of Java as much as their city cousins. It does mean, however, that inasmuch as it is easier to make coffee in the old coffee pot than it is to make good toast over a kerosene or wood stove, that farmers' wives have not just "come in" and bought percolators as freely as they have toasters.

Well does the experience, in selling appliances, of the local utility office and the local dealers of Tyler, Texas, come to mind. The utility company had just opened its store and had announced its intention of selling electrical equipment and appliances when the local dealers began to raise objections. A meeting of all concerned was called. Plans were made for cooperation with results that when the utility put on a campaign of any kind, for instance, on waffle irons or electric irons, or toasters, the other merchants, knowing that such a campaign was in prospect,

The widespread use of appliances on electrified farms is proof that the farm housewife appreciates the value of electrical appliances in the home.

had waffle irons, or electric irons, or toasters on display. Some of the dealers put on store demonstrations certain days during these sales campaigns. While the public was being bombarded with advertisements, circulars, special prize offers, etc., on certain appliances, the dealers were talking and displaying the same appliance. The result of this cooperation, by the end of the year, showed that the dealers had sold several times as many appliances as they had any previous year.

This cooperation had in effect reached out and tapped the untouched farm market. It is true that perhaps 50% of the appliances were sold to town people, yet the sales to farmers was so far beyond any previous sale record as to greatly surprise all of the dealers and the utility company as well.

Enjoy Electrical Conveniences

Do farmers eat waffles? Yes, and how!—ELECTRICITY ON THE FARM reader survey shows that 18% have electric waffle irons. While no figures are available for the percentage of city users of waffle irons, from indications and from general observation it would seem that it is not as high as the percentage using percolators. This being true indicates that there is not as wide a difference between the number of farmers using waffle irons as there is between the number of farmers using percolators in comparison with their city cousins. It substantiates the contention that farmers enjoy the conveniences of electrical appliances. The waffle morning on the electrified farm, having an electric waffle iron, is not such a task for the farm mother as it used to be. It means a lot less trips to the kitchen for her and a longer time at the table with the family. It means enjoyment that is not possible for the farmer that does not have electric service.

Summing up the interviews, experiences and the surveys there is but one conclusion to be reached from all this evidence—first, electrified farms stand alone as typifying leadership in the farm field; second, this group of farmers are electrically minded; third, they appreciate electric service; fourth, they are proud of their good fortune; fifth, they are buying and using electrical appliances much faster than their city cousins in proportion to the sales effort put forth to reach them. A larger percentage of them are actual prospects for toasters, waffle irons, percolators, hot plates and other appliances. The lack of city gas makes the electrical appliance all the more convenient and necessary.

The farm field is the next great market for electrical appliances and electrical equipment.

Farm Electrification Continues to Increase

The national survey of the N.E.L.A. shows that during 1930 farmers used 1,779,940,000 kilowatt hours of current at a cost of $46,187,600. There were 644,421 of the total 6,288,000 farms in the United States receiving electric power at the end of 1930. During the first 6 months of 1930, 68,000 new connections were made, and 40,000 were made during corresponding period of 1931. Also more power per farm is being used as is indicated by the comparison of 707 Kwh average per farm for 1929 with 740 Kwh average for 1930. As to the cost of current to the farmer there are the following comparative figures:

	1930	1929	
Average revenue per Kwh.....	6.88c	6.93c	Decrease 1%
Average annual bill per farm..	$50.91	$49.00	Increase 4%

Leavenworth New Westinghouse Advertising Manager

Ralph Leavenworth has been appointed general advertising manager of the Westinghouse Electric and Manufacturing Company, according to an announcement made recently by J. S. Tritle, vice-president and general manager. He will have charge of all advertising and publicity activities of the company, the announcement reads, including the advertising division of the merchandising department, now centered in Mansfield, Ohio.

FIFTH PURDUE CONFERENCE AN OUTSTANDING SUCCESS

By J. E. WAGGONER

WHILE the attendance was not as large as in former years, it was unusually good considering present economic conditions. As a whole most of the power companies of the state were represented, and the number of manufacturers' representatives who attended the meeting, indicated that they had not lost interest in this new and rapidly growing market.

There was no lagging of interest from the introduction by Prof. Wm. Aikenhead of Director J. H. Skinner of the Purdue University Agricultural Experiment Station to the final meeting presided over by Prof. Hienton. Director Skinner said in part: "The farmer has to take care of himself as far as management goes on his farm, but agriculture as a whole will be benefitted by unity of action. There is a growth of opinion that there must be unanimity of action in marketing. . . . This is the time when we should make every effort possible to gather new information, which will help to solve the problems of the uses of electricity in agriculture."

Mr. C. V. Sorenson, Chairman of the Great Lakes Division, NELA Rural Service Committee, expressed confidence of the power companies in rural electrification when he said: "This work cannot stop. It must be carried on."

Research Important

"One of the important things in the development of rural electrification is research." . . . "Market developments is important and from indications there will be a time in the not distant future when a tremendous market for electrical equipment will be found in Indiana."

Dr. MacGillivray in his discussion of the construction and heating of hotbeds said: "Electricity permits a very accurate control of temperature, which is necessary for desirable results. The right temperature for germination will help materially in saving seed

An interesting paper on electric hotbeds was presented by Mr. Richard Boonstra, Agricultural Engineer of the Public Service Co. of Northern Illinois. He said they selected fourteen places in as many localities in their study of this problem. The company furnished the cable and the farmer paid for the energy used. This arrangement proved a very happy solution, as it resulted in a careful and a practical operation of the hotbeds.

Hotbed Experiments

Fifty feet of cable was installed in each hotbed (12 ft. x 6 ft. in size). In the larger ones, a little more was used. In one instance an experiment was conducted, on tomato plants, by doubling the amount of heat applied to the bed. The tomato plants came up in four days, which is about half the usual time required. The plants were somewhat spindly, but when the heat was cut off for a time they became sturdy and strong.

"From the information presented it is obvious that lead covered cable has many varied uses and that the users in our territory have derived considerable benefit from its use. The farmers are all well satisfied and do not complain about the electric bills.

"The manufacturer believes in his cable, the farmer in its use, and now we believe in selling it."

Prof. I. P. Blauser of Ohio State University gave a comprehensive resume of the practical uses of electricity in poultry production. Methods are being rapidly developed which will relieve the poultry producer of many of the details that are irksome and eliminate for him many of the hazards which formerly were common in that business.

The experiments, now being conducted by Purdue University in cooperation with the Utilities Research Commission, on the use of various kinds of light on flowering plants, were explained briefly by Prof. Laurenz Greene, Horticultural Department. This experimental work undertaken by Prof. Greene promises not only to be a good load-builder but also indicates that it will be practical from the standpoint of the grower. "Not only," says Prof. Greene, "does electricity promise to be of value, to the grower of flowering plants, but there is no doubt that electric refrigeration can be used more extensively in the preservation of cut flowers."

In discussing the subject, "Motors for Operating Farm Equipment," Prof. H. J. Gallagher, emphasized the problem of familiarizing the farmer with electric motors —the care of motors on the farm is most important. He said: "The electric motor is the most economical, easiest operated, most convenient source of power for the farm. More electric motors will be sold, to agriculture, only through educational work."

Modern Methods Essential

"Agriculture as we know it is comparatively new. A nation with the population of the United States would be impossible without modern agriculture. The electric industry is now a necessity in industry, and in time will become as necessary on the farm as in the city," stated Mr. W. T. McCaskey, Middle West Utilities Company, in discussing the subject "The Inter-Relation of Agriculture and the Electric Industries."

In opening the afternoon session of the second day Mr. C. V. Sorenson covered the plans for cooperation with various dealer organizations in merchandising electrical equipment to the farmer, in a comprehensive way. This problem is being attacked in a definite and aggressive way in Indiana under Mr. Sorenson's able direction.

"The invitation for us to come here shows a desire to cooperation on the part of the utilities," says Mr. L. M. Pretcher of the Indiana Retail Hardware Dealers' Association. He enlarged on this subject further by saying, "Utility companies and dealers must work hand in hand for their mutual benefit and with entire confidence. The hardware dealers can carry out their part of this program because of their knowledge of farm life."

Electricity Interests Farmer

Mr. E. C. Landis of the Implement Dealers' Association said: "At least 30 per cent of the work, on the farm, can be done by electricity and there is no doubt that rural people are interested in electricity and electrical equipment—the implement dealer is going to lose a lot of business unless he gets busy and gets into this field."

Mr. Earl L. Clevenger discussed the problem of merchandising from the standpoint of the Indiana Master Plumbers' Association. He believes that his association will do their part in building up an organization to reach the field created by the extension of rural lines.

Prof. E. E. King, in discussing "Feeding Wheat to Livestock," said: "Wheat should be ground for hogs. By so doing its value is increased by 15 per cent to 20 per cent—cattle gain better on ground oats than on whole oats—hogs make better gains on ground oats than they do on the unground."

"Indiana's New Dairy Sanitary Requirements" were discussed by Prof. E. H. Parfitt. The use of electricity on the dairy farm has saved a great deal of time in the production of good milk. Especially is this true in the sterilization of dairy equipment, cooling the milk, lighting the barn, ventilating the barn, and in cleaning the cows. There is no place on the farm that electricity plays as important a part as in the production of good high-grade milk." Prof. Parfitt has found that palatability is the one quality of milk that greatly effects consumption.

He stated that palatability depends to a large measure on the bacteria content. Bacteria content effects the fundamental qualities of healthfulness, food value, cleanliness, keeping quality, taste, and odor. Inasmuch as the bacteria

content affects the palatability, the control of bacteria is very important. In the main the bacteria count is controlled by sterilization of the utensils, and by proper cooling of the milk. Electric dairy sterilizers are growing rapidly in popularity because of the effectiveness with which they sterilize the utensils, and the ease and convenience with which this work can be done. . . . The critical temperature for the control of bacteria growth is 53 degrees F. "Starting with two samples of milk," said Prof. Parfitt, "one held at a temperature of 53 degrees and the other at 54 degrees shows a remarkable difference in the growth of bacteria. The sample at 54 degrees showed an increase from one bacterium to 32 bacteria in 18 hours, while the sample held at 53 degrees showed an increase from one bacterium to 2 bacteria, or an increase of only one. . . . There are very few farms that have water cold enough to reduce the milk to 53 degrees F. . . . This shows the importance of electric milk coolers in the production of good milk. . . . The importance of proper sterilization of utensils is becoming more and more recognized. . . . Practically all organisms found on utensils can be killed at a temperature of 185 degrees F. in 15 minutes."

Mr. E. J. Kendall of Indianapolis showed how from practical experiences electricity is a valuable asset to dairy farmers—how it increases their profit by saving time and a lot of work.

"The cooking of soy beans gives best results when combined with others feeds for hogs," is the experience of Prof. I. P. Blauser. Experiments conducted by Prof. Blauser have opened the way for further research in this field. . . . An experimental electric soy bean cooker designed and built by him was used effectively in cooking soy beans. As the cooking was done during the night, on an off peak rate, the cost was very much reduced. The beans that were cooked and fed with corn and tankage were worth about three times as much per bushel as those fed uncooked.

Critic

An art critic, speaking of the virtues of this painting and the faults of that one, finally came to a picture in the gallery and said: "Now, you see in this picture the artist has not learned his trade—it lacks technique and understanding. His trees seem to have no form; they do not stand up; the grass has no roots. His clouds look like bits of paper stuck on the canvas. And here you see he has resorted to a trick to catch the public eye and has attempted to paint a fly. Now, I would not object to the fly, had he been able to draw better and make it look like a fly. This fly looks like a lump of mud and has not the character of a fly."

At this point the fly, having tired of the critic's rambling, took wing and flew away.

Engineers Who Attended Fifth Annual Electrification Conference at Purdue University, Lafayette, Indiana

RURAL ELECTRIFICATION Salesmen's Forum

Conducted by TRUMAN E. HIENTON

Ventilating Farm Buildings

THE assurance of air circulation when desired by electric motor-driven ventilating fans is responsible for the ever widening use of such equipment. In dairy barns and fruit storage houses particularly such fans are being installed since the control of ventilation is much more positive than where the movement of air depends upon the circulation induced by gravity due to the expansion of air when heated.

The use of ventilating fans by the dairyman or livestock farmer and the fruit grower depends upon the availability of a reliable source of electric power so that the rural electric salesman should be interested in the sale of such equipment. The dealer in barn equipment whether he be a lumber, hardware, or implement dealer should also be interested in the sale of motor-driven ventilating fans because of the service which he knows they can render to his customers and also because of the possibility for the sale of additional material for insulating purposes.

Purpose of Ventilation

The ventilation of all buildings whether used by humans or animals or for storing perishables is done primarily to produce and maintain those conditions of temperature and humidity best suited to the comfort of the occupants of the building or to proper preservation of produce as in the case of a storage building. Ventilation for the purpose of maintaining air purity in a barn or storage house is apparently less important than for the maintenance of the proper atmospheric conditions of temperature and humidity. For the purpose of maintaining such conditions, heating equipment in addition to ventilation equipment, is usually provided for human habitations and also to a very limited extent has been provided for poultry, hogs, and sheep. On the other hand refrigeration equipment and even humidifying equipment has been combined with ventilating equipment to provide the required condition of temperature and humidity for storage houses.

A Recent Practice

The ventilation of farm buildings and farm storage houses employing the use of electric fans is rather recent. Consequently, a relatively small amount of investigational work on the ventilation of buildings in which they were used has been done as compared with that in which gravity ventilation systems were used. The report of an investigation using fans in a dairy barn at Iowa State College, contained in the August, 1931, Experiment Station Record, indicates an advantage for the mechanical over the gravity type of ventilation as follows: "Tests of a fan system of mechanical ventilation for dairy barns driven by electric motors indicated that such a system has much merit where a reliable source of electric current is at hand. The control of ventilation is much more positive than where the rarefaction of air due to heating is used to induce circulation for ventilation."

The first reported test of the use of electric fans for ventilating purposes was that conducted at the West Central Experiment Station of the University of Minnesota at

Morris, Minnesota. Three electric fans were installed there to ventilate a dairy barn in October, 1921. Tests were conducted with these for a period of three years. Quoting from the report of this work, "As a result of the study of this installation the following conclusions were reached:

Air may be taken out at the ceiling of a stable as well as near the floor, resulting in just as good temperature and moisture conditions and in a smaller amount of air.

Electric fan ventilation can be successfully used if it can be so installed as to prevent burning out the fans.

Dampers in ducts are dangerous as they may be closed when fans are running and cause fans to burn out.

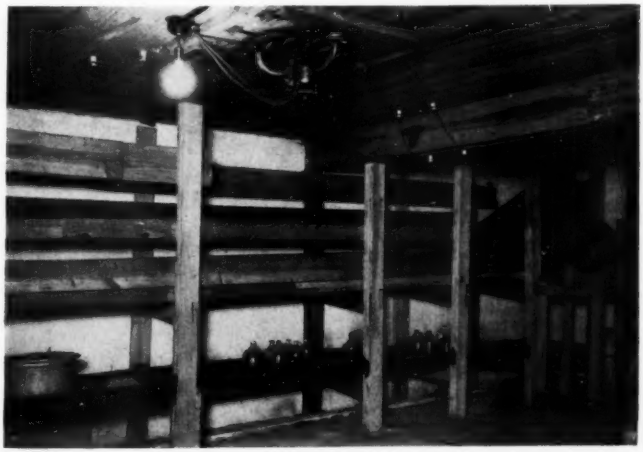
Head winds must be prevented from blowing against fans, as static head produced by strong winds is sufficient to burn out small fans.

Covers may freeze shut and fans may freeze to frames and cause the fans to burn out.

Electric ventilation using from 250 to 350 kilowatt-hours per year for 36 head of cattle will cost less than gravity ventilation."

Following this work two installations of fan ventilation systems were made on the Red Wing experimental line. The results of tests conducted on these installations together with those obtained in the earlier work were used as a background for the design of new fans. Two fans of this new design were installed at the Morris station at which the tests were conducted in 1921 and the results are well reported in "The Red Wing Project on Utilization of Electricity in Agriculture," published by the University of Minnesota, Agricultural Experiment Station. The electric current used by these two fans from November 9, 1928 until March 23, 1929 was 315 kilowatt-hours, which at any power rate would be a very reasonable cost.

The heat supplied in a dairy barn comes from the animals themselves so that the heat losses from the building are an important item when the installation of a ventilation system is being planned

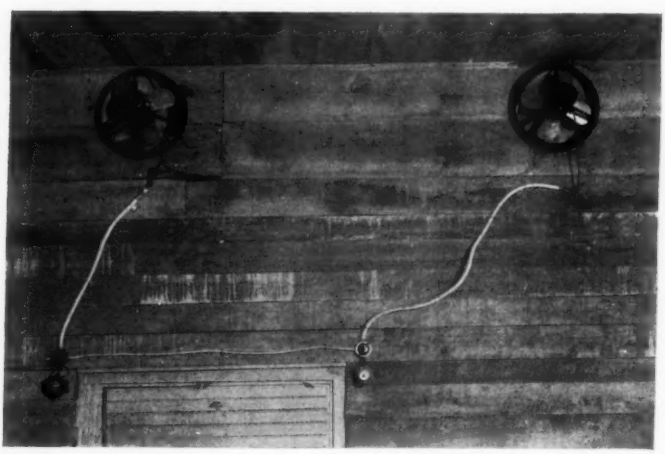


Ventilating fans in storage plant on Moses-Fell Annex Farm, Bedford, Indiana. The fan on the stand is used to circulate air in the storage room to secure rapid cooling of the apples when stored

by the dealer or rural service man. The importance of this feature was strongly emphasized by Prof. A. W. Clyde, now of Pennsylvania State College, in a paper published in the January, 1931 issue of "Agricultural Engineering." The second conclusion drawn from his study of "Barn Ventilation with Electric Fans" conducted at Iowa State College follows: "This study shows with present methods at least the utter impossibility of putting dairy cows in a poorly insulated barn and expecting them to keep it above freezing if the air is changed very often. To be specific, something better than a single boarded wall or an ordinary 8-inch masonry wall is necessary in barns of ordinary size. If the walls conduct heat rapidly, much change of air in cold weather causes a cold barn. If the ventilation is restricted to secure warmth then the humidity goes very high. If we demand dry walls in addition to warmth, good insulation is doubly important. The ceiling area is so large that it must be insulated with hay or other material for satisfactory results."

This point made by Professor Clyde should be of particular interest to dealers who handle lumber and building supplies as well as the ventilating equipment. Observations made by the writer on the operation of a mechanically ventilated dairy barn located near Whitestown, Indiana would seem to verify the value of using insulating material in the barn. In this barn, which is insulated on the ceiling and walls by an insulating material nailed to the floor joists and studs, three temperature controlled electric fans are providing satisfactory ventilation, both from the standpoint of temperature and humidity.

Tests to determine the ventilation requirements of poultry houses have been conducted by the Agricultural Experiment Stations of the Nebraska, Iowa State, and Purdue Universities during the past few years. At the Nebraska station an exhaust fan was used to move about 300 cubic feet of air per hen per hour from a pen in which the temperature was maintained at a minimum of 50 degrees F. The results obtained over the 3-year test period indicated that there was nothing in the record to encourage the use



The Hall Orchard Company of Seymour, Indiana, employ electric ventilating fans in their apple storage house

of artificial ventilation by means of a fan (Bulletin 247, University of Nebraska, Agricultural Experiment Station.) At the Purdue Station, "Four years results have shown no definite benefits in winter or long-time egg production arising from the use of insulation or special ventilation devices." (Report of the Director, Purdue University, Agricultural Experiment Station for the year ending June 30, 1930.) It would seem therefore that, unless additional experimental work should provide different results, the poultry house does not offer a market for mechanical ventilation under conditions similar to those included in the Nebraska and Purdue tests.

At the present time two types of storage houses are used for the storing of apples at or near the orchard, cool-storage and cold-storage. The first depends upon ventilation with cold outdoor air for cooling and the second upon cooling by mechanical means. Electrically driven fans are used advantageously in both types of storage houses.

Adequate Ventilation Required

The air-cooled apple-storage house to function properly must be provided with an adequate ventilation system so as to change the air in the house rapidly at those times when desired. The necessity for this ventilation system is often most acute during the picking season of late September and early October in Southern Indiana and Illinois orchards. Fruit is occasionally picked with outdoor temperatures ranging above 70 degrees F. and it is very important that it be cooled as quickly as possible after picking. Motor-driven exhaust fans are commonly installed to aid in rapidly changing the air in the storage rooms so as to reduce it to that of the outdoor temperature. In some installations ice bunkers are installed in cool storage houses to aid in cooling down the fruit immediately after picking. In such cases ordinary household fans are being employed to secure a more rapid movement of air within the cool storage room so as to expedite the melting of the ice and the cooling of the fruit.

The importance of proper ventilation of cool-storage rooms is emphasized in Department Bulletin No. 1406 of the U. S. Department of Agriculture in the following words: "Careful attention to the ventilation of the storage rooms is essential to the maintenance of low temperatures. A difference of even 2 to 4 degrees in temperatures obtained will markedly influence the way the fruit holds storage."

Fans Aid Air Circulation

In cold storage houses electric fans are frequently employed in circulating the air inside the cold rooms. During the late summer of 1931 two Indiana orchardists installed mechanical refrigeration plants in their apple-storage houses. In one case, where a coil of pipe using direct expansion was suspended from the ceiling of the storage room, four electric fans were employed to distribute the air throughout the room. In the second a direct-expansion unit was installed at one end of the storage house and air ducts were led to and from it to the three floors of the storage house. A 10-horsepower motor is used to operate the blower which forces the cold air to the various sections of the building.

Electric fans are being successfully employed in an entirely different manner by farmers who harvest and store their own seed corn. One Indiana farmer, who has repeatedly taken prizes with his corn at the International Hay and Grain Show at Chicago makes a specialty of selling seed corn. In the fall, at the time of harvesting the seed corn, in order to prevent loss of the corn from disease, it is usually necessary to reduce the moisture content of this corn by artificial drying. The corn is placed on racks in a room or compartment of the granary and some form of heat provided. Difficulty experienced in securing proper drying of the corn in the corners of the room has been eliminated through the use of electric fans to circulate the air throughout the room. An experiment carried out

by the corn-breeding experts of the Botany department of the Purdue University Agricultural Experiment Station during the past fall indicates that an electric fan combined with electric strip heaters makes a satisfactory combination for drying seed corn in a small room.

It is apparent from the results of experiments conducted by Agricultural Experiment Stations and from the experience of farmers that electric fans have a practical use in securing proper ventilation of certain structures. It is therefore a duty of the power company rural service men and of the equipment dealer to provide electric service and equipment where practical and to aid the farmer in the selection of equipment necessary to provide satisfactory results.

Publications which contain additional and more detailed information on the ventilation of farm structures include the following:

April 1930 and January 1931 issues of Agricultural Engineering containing respectively articles on "Ventilating Dairy Stables with Electric Power" and "A Test of Barn Ventilation with Electric Fans," American Society of Agricultural Engineers, St. Joseph, Michigan.

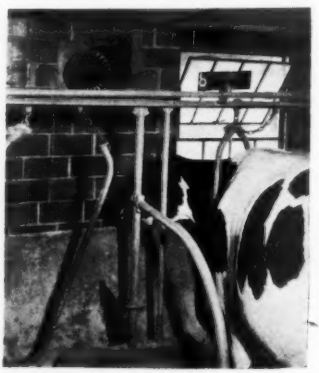
"The Red Wing Project on Utilization of Electricity in Agriculture," University of Minnesota, Agricultural Experiment Station, University Farm, St. Paul, Minnesota.

Bulletin 247, "The Relation of Environmental Conditions in Poultry Houses to Winter Egg Production," University of Nebraska, Agricultural Experiment Station, Lincoln, Nebraska.

Dept. Bulletin No. 1406, "The Ripening, Storage, and Handling of Apples, and Technical Bulletin No. 187, "Ventilation of Farm Barns," U. S. Dept. of Agriculture, Washington, D. C.

Electric ventilating fans are made by the following companies to the knowledge of the writer:

Airmaster Corporation, Chicago, Ill., American Blower Co., Detroit, Mich., Autovent Fan and Blower Co., Chicago, Ill., Buffalo Forge Co., Buffalo, N. Y., Emerson Electric & Mfg. Co., St. Louis, Mo., General Electric Co., Schenectady, N. Y., Hudson Mfg. Co., Chicago, Ill. Ilg Electric Ventilating Co., Chicago, Ill., James Mfg. Co., Fort Atkinson, Wisconsin, Louden Machinery Co., Fairfield, Iowa, Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.



Electric ventilating fan in the dairy barn of Massey Brothers, Jerseyville, Illinois

Sprayit Takes Over G-V

The Electric Sprayit Company of South Bend, Indiana, has purchased the hand sprayer business of the G-V Sprayer Company with plants at Wichita, Kansas, and Lebanon, Tenn. The machinery, inventories and fixtures have been moved to South Bend where the new hand sprayer division will be consoldated with the company's power sprayer division at South Bend.

New Electric Notifier

The new electric Notifier, put out by the Chicago Flexible Shaft Co., 5600 Roosevelt Rd., Chicago, is said to be three clocks in one. First, it is described as being a good-looking electric clock requiring no winding or regulating; second, a 24 hour alarm clock that never needs resetting once it has been set for the required rising hour. Third, it is a "Notifier" that can be set to notify you at the expiration of any period for one minute to three hours.

Mounting Light Fixtures in Farm Buildings

By H. S. HINRICHS

THE location and mounting of the light fixtures in farm buildings—while ordinarily considered a very simple question, does deserve consideration of certain factors which will materially improve the illumination and durability of the system installed. In general, the light fixtures should be mounted between ceiling joists and as close to the ceiling as possible. This position not only gives the widest distribution of light from each fixture (due to the added height), but also provides the best protection of the unit against physical injury.

A common error in mounting fixtures is that of attaching them to the lower edge of the joists with the idea of gaining in light distribution. It might seem at first thought that where the fixtures are mounted between joists, that the joists would interfere with the spread of light. It should be remembered, however, that the light source is well down toward the lower end of the bulb. This distance combined with the depth of the socket or fixture, places the light source several inches from the surface to which the fixture is attached. This fact means that the light from the bulb can spread over a considerable area on the working plane—at or near the floor. The horizontal rays of light which are shut off by the joists are those which do not illuminate the work being done but instead are in the line of vision of the worker. Such light rays hinder rather than assist in desirable illumination. (Caution: With extremely deep joists it may be necessary to attach the fixture a few inches below the actual ceiling.)

The advantage of the reflector is perhaps more clearly demonstrated by this illustration. The reflector utilizes the rays which extend upward or horizontally by reflecting them downward toward the working area, thus making full use of all light produced.

Another factor often overlooked in mounting light fixtures is that the area over which the light is distributed on a given surface increases as the square of the distance from that surface to the light source. Therefore, the higher the light fixture can be mounted, the greater the spread of light from that fixture over a horizontal surface. Accordingly, the higher mounting of fixtures between joists instead of below them, means a fewer number of fixtures, thereby decreasing the cost of the lighting system. This factor, of course, must be applied within reasonable limits and with the further consideration that the greater the spread of illumination, the lower the intensity will be and that larger bulbs may need to be used for the proper intensity.

Spacing of Lights

A simple rule in spacing light fixtures where uniform lighting is desired and where reflectors are used is that for shallow bowl type reflectors the distance between fixtures can be twice the distance from the surface to be illuminated

(*Continued on page S 16*)

BOB'S PAGE

Devoted to Merchandising of Electrical Equipment in Rural Communities

Conducted by Robt. J. Fulton

Be a Specialist in What You Are Selling

WHO is responsible for sales today? There is only one answer to that question: we as salesmen and merchants have the greatest percent of that responsibility.

However, some of us are still trying to employ the methods that were used in 1910. Times have changed. Lines have changed. Buying habits, methods of selling and also distribution practices are changing. How can a person using 1910 methods expect to sell products and ideas of service at this time?

Act Now—Don't Wait

The good old days of 1928-1929, as some call them, will never come back. The salesmen who are waiting for times to be the same as they were then are merely waiting for something that will never happen. They are like the fellow who held the bag at the snipe hunt. He was waiting for the snipe that his friends were supposed to scare up. *But the snipe never came* and the friends went home and to bed and left him waiting.

Are you *holding the bag?*

Times right now are pretty good times for a good salesman—the salesman who knows where to go after business and how to get it.

We can't increase the price of cotton or wheat. We can't help the drouth season of last year or the floods of the previous year, *but we can do a lot of things about ourselves and our methods.* Not many men stand still in the selling business. They either go forward or slip back. The man who slips back or fades out of the picture entirely will *not* be on hand to *get his share of good times.* We should not worry about times or conditions. Every salesman has a job to do now, *today and tomorrow.*

Analyze your territory or community—comb it with a fine tooth comb. Are you thoroughly working every possible prospect in your territory? Are you sold on your company and the line they have to offer? Do you religiously read all the advertising matter pertaining to the products you sell? Do you find out all you can about the people who can profit by your products or service?

Together with two salesmen from a certain power company, I called on a farmer in September. He had had the high line for sixteen months and had all the electrical equipment he could use in his house. The transformer was about fifty feet from his barn and the entrance switch about one hundred feet, *yet* he had never wired his barn, although he milked forty cows and hauled 1½ tons of feed to town each week to have it ground. His farm was clear of mortgage. It took us about a half hour to sell him on the wiring of his barn, a 5 H. P. motor and a hammer mill. You never know but what you are passing up a lot of extra sales.

Serve and Help

Keep your prospects, and hunt for more. *Expose yourself to more orders.* Remember, in talking to a prospect, that you want to *serve* him and *help* him. If your customer feels that you want to help him make more money, to stay in business and be better satisfied, he will buy. Don't worry about the order. Worry about the customer. Can you benefit him? Do you, as a salesman, know the difference between a suspect and a prospect? Remember, no proposition can be a cost and a saving at the same time.

The salesman who is to make a

The Curved Back of the

"UTILITY"

OUT-DOOR METER SERVICE SWITCH

makes pole-mounting practical. It fits any pole snugly. Note the heat conduit entrance. This is only one of the many exclusive features that make the "Utility" line so popular for rural work. Why not write for illustrated catalog? No obligation.

F. D. KEES MANUFACTURING CO.
Beatrice, Nebraska

success in this age must keep on his toes and be a real merchandiser. The old methods are passé. How far would Colonel Lindbergh have gotten if he had used an airplane of the model made fifteen years ago? You know the answer. He would not have gotten out of this country. He won because he used the most modern plane he could get and carefully studied and planned his flight, never ignoring the smallest detail or angle.

The New Year, 1932, will belong to the *workers*, the live wires who want to get ahead and succeed, and who know how to do it.

Agriculture to Recognize Edison's Work

Organized agriculture will pay its tribute to Thomas Alva Edison's part in the development of the nation's basic industry, during the thirteenth annual convention of the American Farm Bureau Federation at the Hotel Sherman, Chicago, December 4 to 9.

An extensive display portraying the progress of rural electrification in the United States is to be a prominent feature of the A. F. B. F. Exposition of Agricultural Progress that is to be staged during the final three days of the convention, December 7 to 9.

The National Committee on the Relation of Electricity to Agriculture, of which M. S. Winder, executive secretary of the Farm Bureau Federation, is chairman, is planning an exhibit which will trace the marvelous story of advance from the candle light era to the present era of electric light and power on the farm.

Utility companies and manufacturers of electrical appliances for use on the farm and in the farm home have also arranged to picture the important part electricity is playing in providing modern facilities, comforts and conveniences for the farmer.

Valuable Information

The manufacturers represented in our advertising pages have interesting and valuable data about their equipment which is yours for the asking. When writing, be sure to mention ELECTRICITY ON THE FARM.

BRILLION-BEVAN

PORTABLE MOTOR BASE

With it you can use one motor to operate your grinder, washing machine, vacuum pump sausage grinder, line shaft, or any other installation which requires ½ H.P. or less to drive it. Write for prices.

One feature of high-grade line of Electric Farm Equipment.

ELECTRIC PUMPERS—PUMP JACKS—WATER SYSTEMS—GRINDERS

BRILLION IRON WORKS
Brillion, Wis.

Buss Brings Out a New Light

The new Buss light illustrated herewith, strikes a new note in the adjustable, clamping lamp. The tall, slender base and large, deep metal shade give it a style that harmonizes with either the modern or Colonial scheme of home decoration. The light is 14" high and with its especially designed shade, it makes an unusually desirable table or desk lamp, throwing a large circle of light. This model of lamp clamps anywhere or hangs on the wall like a permanent fixture. The socket bends on a ball joint and the shade tilts to any position. The light is manufactured by the Bussman Maunfacturing Company, University at Jefferson, St. Louis, Mo.

The New Buss Light

Mounting Light Fixtures

(*Continued from page S* 13)

to the light source. For dome type reflectors the spacing is one and one-half times the distance from the surface to the light source.

In barns and other farm buildings, physical protection of the bulb and fixture is of more importance than in most industrial installations. In such buildings, ceilings are usually relatively low, so that accidental breakage of bulbs and sockets is more frequent. By mounting the fixtures between joists, an added protection is secured—which over a period of years may result in considerable saving in replacement and repairs.

The preferable method of attaching the fixture to the ceiling is by means of the standard 3¼ inch outlet or knockout box having ½ inch knockouts. Practically any of the usual lamp sockets or fixtures either with or without reflectors can be readily attached to such fitting. Any of the common wiring materials also naturally work with these fittings and they can be obtained from any usual stock of wiring materials. Even with the open knob and tube wiring, such an outlet box together with a simple receptacle cover, forms a much more durable unit than the pony cleat receptacle, too often used, at a very slight additional cost in the wiring system. This greater durability together with the ease of shifting to a reflector type of fitting at a later time, if it is not installed originally, are factors that more than compensate for such slight added cost. With all types of wiring materials other than open knob and tube systems, some such outlet box is required by the Underwriters Code. Since this type of box is so universally used, its use for this purpose requires no unnecessary stock for the contractor.

Trade Literature Received

Pressure Spray Gun

Literature describing and illustrating the Paint-o-Mister, a pressure spray gun manufactured by the Atco Products Corp., Rahway, N. J. The Paint-o-Mister is made in two sizes, the smaller size being suitable for use about the home, and a larger outfit, Model GH, designed for painting large surfaces.

Panel and Switchboard Data

A ninely page catalog in three colors, with blue and gold of the affiliated organization "Square D" as a motif, issued by the Diamond Electrical Manufacturing Co., Ltd. of Los Angeles, Calif. The catalog is devoted to various types and installations of switchboards. In addition to complete specifications, a detailed group of recommendations have been made for dead front, live rear and dead front, dead rear switchboards and power panels.

Electric Brooder Units

Iva M. Petersime & Son, Gettysburg, Ohio, have just issued a new folder describing their electric brooder units. It is an attractive mailing piece describing in detail why these units will pay the poultryman two extra profits.

COVER TITLE CONTEST

October Winners

First Prize - $25.00

"A 'series' of pleasant moments before he is called 'out'."

Mrs. E. Guerber,
R. 1, Hillsboro, Ore.

The following have been selected as winners of the $5.00 cash prizes:

●

"Missed from the field, the reason sought . . . 'Tis the World Series game electrically brought."

Mrs. Arthur O. Ritz,
R. 1, Sonoma, Calif.

●

"The World Series, long to the farmer denied . . . Electricity now brings to his own fireside."

J. C. Pattillo, Verbena, Ala.

●

"Let electricity do the chores . . . While the radio brings in the scores."

O. C. Clark, Opelousas, La.

●

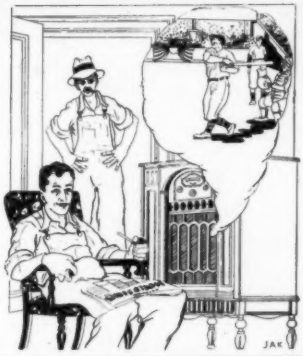
"An electric radio makes a baseball fan of the farmer and his hired man."

Emil C. Moehner, R. 11, Box 76,
Jefferson Barracks, Mo.

●

"Other years he had to wait and get the news a few days late . . . Now, press a button on the wall, he hears the umpire cry 'play ball'."

Mrs. Marguerita Boyce,
R. 1, Bangall, N. Y.



RULES for December Contest

For the best title to this month's front cover illustration, a cash prize of $25.00 will be awarded.

In addition, we will pay $5.00 for each of five titles given honorable mention.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

The winners will be announced in the February issue.

Only the farmers or members of the farm family, to whom this magazine was sent, are eligible.

Only one title may be submitted.

Use the form below or write your answers on a plain sheet of paper in similar form.

Contestants must answer question (A).

Write plainly and send your suggestion to the Title Editor, ELECTRICITY ON THE FARM, 24 W. 40th St., New York, before January 1, 1932.

My title for the December Front Cover picture of ELECTRICITY ON THE FARM is

.....

.....

.....

.....

(A) If you own an electric Clothes Washing Machine fill in:

(1) ..... **Brand Name**

(2) ..... **Name of Dealer from Whom Purchased**

..... **Address of Dealer**

My name is..... **R. F. D.**.....

Post Office..... **County**..... **State**.....

Spread Your Christmas Cheer Over the Entire Year

TODAY, in homes everywhere, the electrical Christmas presents of a year ago are still in use. You can shop far and wide without finding gifts half as suitable or practical.

Here are a few of the more popular small appliances for you to consider—automatic irons, waffle irons, toasters, coffee percolators, corn poppers, food mixers, hair curlers, portable heaters and warming pads.

And for mother, nothing would be more acceptable than an electric refrigerator, an electric range, water system or a clothes washer. She deserves every one of them, doesn't she?

Ask your Power Company if you want further information or write to ELECTRICITY ON THE FARM, 24 West 40th Street, New York City, or, 30 No. Michigan Avenue, Chicago.

DEC.